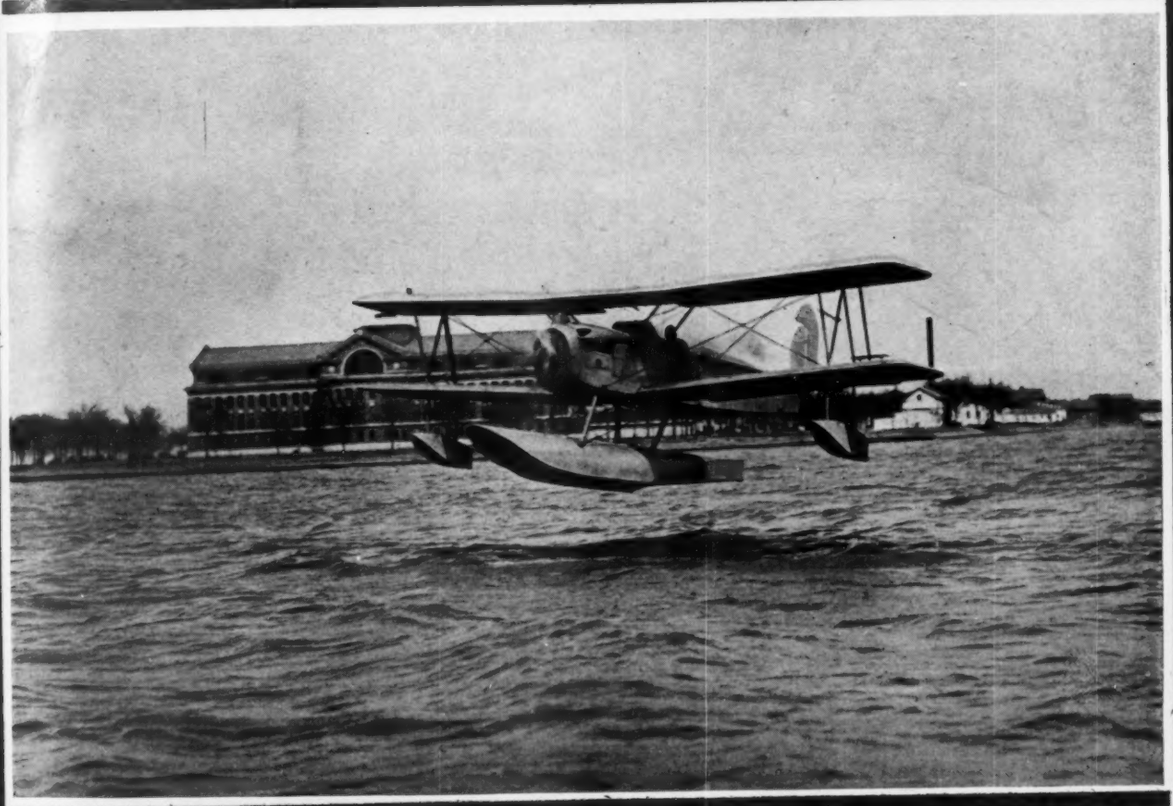
"If war were declared to-morrow, what would we do for aircraft?"

AVIATION

APRIL 30, 1923 | Issued Weekly | PRICE 10 CENTS



Dayton Wright "Chummy" Two-Seater fitted as a seaplane

VOLUME XIV

Number 18

SPECIAL FEATURES

AMERICAN AIRPLANE SPEED RECORDS

MARTIN-NAVY SHIPBOARD SCOUT SEAPLANE

PROPOSALS FOR CONTRACT AIR MAIL SERVICES

DAYTON WRIGHT "CHUMMY" SPORT PLANE DESCRIBED

THE GARDNER, MOFFAT CO., INC.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

Entered as Second-Class Matter, Nov. 22, 1920, at the Post Office at Highland, N. Y. under Act of March 3, 1879.

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It is only when engineering, production and service are firmly grounded upon experience that the magnitude of Wright Achievement may be realized in its proper perspective.

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WRIGHT AERONAUTICAL CORPORATION
Paterson, New Jersey, U.S.A.

"The Identification of Incomparable Service"

WRIGHT

APRIL 30, 1923

AVIATION

VOL. XIV. NO. 18

Member of the Audit Bureau of Circulations

CONTENTS

Editorials	465	Aeronautical Patents	474
Regarding American Airplane Speed Records	466	The Story of a Remarkable Engine Endurance Test	475
Trials of the Remington-Burnelli Airliner	467	British Light Plane Competition	476
Contract Air Mail Services Advertised	468	Army Airship RN1 Completed	476
The Dayton Wright "Chummy" Sport Plane	469	Notice to Aviators	476
Maintenance Work Afloat in the Naval Aviation	471	N.A.A. Bulletin	477
New Type of Aircraft—the Jumping Balloon	472	The Zenith Aviation Cup	478
Book Review	473	Airplanes to Aid Agriculture	478
A Shipboard Scout Seaplane—the Martin Navy	474	Army and Navy Air News	479

THE GARDNER, MOFFAT COMPANY, Inc., *Publishers*

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AVIATION

LADISLAS D'ORCY, EDITOR
VIRGINIUS E. CLARK
EDWARD P. WARNER
RALPH H. UPSON, CONTRIBUTING EDITORS

Vol. XIV APRIL 30, 1923 No. 18

Economical Airplanes

THOSE who have entertained doubts regarding the practical value of the extensive gliding experiments Europe has been pursuing during the past two years, may find satisfaction in the news of the successful trials of the Dewoitine "light plane" or low powered airplane.

This remarkable machine is a simple adaptation of the glider with which the French pilot Barbot made an eight and a half hour motorless flight in Algeria some time ago. Fitted with a 7-10 hp. engine this little ship has flown its gross weight of 550 lb. at a high speed of 56 m.p.h., has climbed 1500 ft. and has landed at 20 m.p.h. The power required for a cruising speed of 45 m.p.h. is only 5½ hp., which comes to say that in flight this machine carries 100 lb. per horsepower as against some 12 to 15 lb. for the ordinary commercial airplane.

These figures sound extraordinary at first sight and their accuracy might be questioned were it not for the fact that M. Dewoitine, the designer of this light plane, is also the constructor of successful high powered airplanes. In an interview given to a French contemporary, M. Dewoitine declared that his light plane is not an attempt to produce an "auxiliary sailplane", that is, a hybrid airplane that would now soar, now use its power plant, according to wind conditions. On the contrary, what the French constructor endeavored to prove was that one could obtain through the application of improved aerofoils an airplane of immensely superior power economy than has hitherto been believed possible. He also points out that such a development, far from being instrumental in producing underpowered "freak" machines, will benefit all types of flying machines, from the low powered sport plane up to the heavily engined racers.

These views we fully share, for while the Dewoitine light plane may be too lightly powered for the practical purpose of even a sport machine, it should be remembered that this is but an experimental ship with which the constructor obviously wished to make a "maximum" demonstration. On the other hand, if as a result of these experiments it should become possible to build in a few years efficient commercial airplanes having but one half or even but one third the power loading of the Dewoitine light plane, they would be so far superior to our present day designs that it would fundamentally alter the whole problem of air transport economics. A commercial airplane that would carry from 15 to 20 lb. of *pay load* per horsepower would become a paying proposition indeed, for this would mean in the case of Mail DH a commercial load of from 5000 to 7000 lb.

Obviously, we are but at the threshold of some very important developments in greater power flight economy. The extravagance of power with which present day airplanes are pushed through the air for lack of more efficient wing curves is one of the pernicious after effects of the war, when the quickest way to get improved performance was to pile horsepower upon horsepower. Such a course may be justified from the military viewpoint, but the commercial aspect of the question demands a more rational solution.

That the first step in the right direction should have been made as a direct result of experiments with gliding machines is a striking illustration of their value for developing better aerofoils and aerodynamic combinations. Gliding contests offer unexcelled opportunities for testing full size aerofoils under conditions which it is impossible to duplicate in a wind tunnel. Hence we welcome the gliding flight competition which the National Aeronautic Association organizes next summer on the Pacific Coast.

The National Balloon Race

THE announcement of the National Balloon Race, to be held this year from Indianapolis July 4, gives promise of different conditions than have applied for many years. The light summer winds will give little chance for record distance but will emphasize the importance of individual skill on the part of the contestants. The inland position, with plenty of room for maneuvering at the start, will be an important asset to the pilot who is trying to hold a sustained course through the varied air currents, at the same time dodging thunderstorms and economizing as much as possible his fast dwindling supply of ballast. Altogether we may expect some very interesting experiences. In fact the whole history of this oldest American classic of the air shows no two races to be even remotely similar. Perhaps it is this very quality that gives to balloon racing, as the years pass, a constantly increasing vitality. Certain, it is that in spite of the great advance in power driven aircraft (or it is perhaps because of it) the free balloon and glider are in a stronger position today than ever before.

From a development standpoint, the particular value of ballooning is as a laboratory for training and experiment in aerostatics, navigation, and meteorology. But undoubtedly its strongest appeal lies in the realms of pure sport. It is a man to man contest of wits, courage and endurance, where the vehicle plays but a minor though necessary part. Here one can forget about horsepower and performance tests. The *race* is the test, and the winner is he who can use to the best advantage the very forces of Nature herself!

We congratulate Indianapolis, for indications all point to the biggest race of its kind ever held in this country.

"If war were declared to-morrow what would we do for aircraft?"

Regarding American Airplane Speed Records

Official Statement by Contest Committee of National Aeronautic Association of U.S.A.

In connection with the recent speed trials of the Army-Curtiss racer made by Lieut. L. J. Maitland, A.S. at Dayton, Ohio, AVIATION *remarked in its April 9 issue that owing to an apparently irregular performance, the pilot having dived into the speed course these trials could hardly be homologated as a world's record.*

In the April 23 issue we announced on the strength of a statement (B-1090) issued by the National Aeronautic Association of U.S.A. that Lieutenant Maitland's performance was to be considered as a new world's record for maximum speed. The statement in question, while it did not actually say that the Contest Committee of the N.A.A. had homologated the performance, credited Lieutenant Maitland with having "established a world record of nearly 240 m.p.h." As it seemed incredible that the N.A.A. would officially announce a performance as a world's record unless its Contest Committee had previously homologated it, we presumed that the latter was the case. Now it appears that we were wrong in this presumption, for the Contest Committee did not homologate Lieutenant Maitland's performance, disallowing his claim to a world's record on the ground that the speed trials were not in strict accordance with F.A.I. rules. Hence, AVIATION *was right in the first place.*

The statement printed below which has been issued by the Contest Committee of the N.A.A. now sets matters right. Although the confusion which resulted from a premature announcement is to be regretted, it is gratifying to see how strictly the Contest Committee adheres to the regulations of the F.A.I. At the same time it is a source of great satisfaction to be able to announce that the United States has recaptured the world's maximum speed record "according to regulations" with Lieut. R. L. Maughan's splendid performance.—EDITOR.

Lieut. R. L. Maughan, U. S. Army, established a world record of 236.587 m.p.h. in speed tests at Wilbur Wright Field, Dayton, Ohio. His mark of 380.751 km.p.h. over the one kilometer course will stand officially for all time, as this distance of 3,280.8 ft. was abandoned for speed trials on April 1. Maughan's flight was made March 29.

The airplane was a Curtiss R6, with Curtiss D12 motor of 465 hp. Maughan's performance in detail follows:

	Seconds
South bound first flight	10.66
North bound first flight	8.27
	18.93

18.93 divided by 2 gives average for two flights over course 9.465 sec., equalling 380.348 km.p.h.

South bound second flight	10.50
North bound second flight	8.39
	18.89

18.89 divided by 2 gives average for two flights over course 9.445 sec. equalling 381.154 km.p.h.

380.348 and 381.154 divided by 2 gives average speed 380.751 km.p.h. or 236.587 m.p.h.

Maitland's Claim Disallowed

The Contest Committee makes this statement: "It has been necessary to discard the attempts made by Lieut. L. J. Maitland, U. S. Army, in view of the fact that he did not maintain horizontal flight over the course as required by the rules and regulations of the Fédération Aéronautique Internationale.

Lieut R. L. Maughan standing alongside the Army-Curtiss racer on which he made a new world speed record of 236.5 m.p.h. on May 29 at Wilbur Wright Field, Dayton, Ohio

"If war were declared to-morrow what would we do for aircraft?"

This is deeply regretted by the National Aeronautic Association, for we realize that it was the full intention of Lieutenant Maitland to maintain horizontal flight, and we regret that the regulations make it impossible to accept his speeds."

Lieut. Maughan's speed exceeds the record recently made by Sadi Lecointe of France of 233.01 m.p.h. by nearly four miles per hour. Lieutenant Maitland exceeded the Lecointe record in his two attempts, making a maximum speed of 239.95 m.p.h. over the course. Maughan's maximum speed was at the rate of 435.308 km.p.h. In his dash of 8.27 sec. he attained a speed of approximately 4½ miles per minute. Lieutenant Maitland's performances in detail follow:

Maitland's First Attempt

	Seconds
South bound first flight	10.58
North bound first flight	8.40
	18.98

18.98 divided by 2 gives average for two flights over course 9.49 sec., equalling 379.346 km.p.h.

South bound second flight	10.39
North bound second flight	9.58
	19.97

19.97 divided by 2 gives average for two flights over course 9.985 sec., equalling 360.540 km.p.h.

379.346 and 360.540 divided by 2 gives average speed 369.943 km.p.h.

Maitland's Second Attempt

	Seconds
South bound first flight	10.59
North bound first flight	7.95
	18.54

18.54 divided by 2 gives average for two flights over course 9.27 sec., equalling 388.349 km.p.h.

South bound second flight	10.72
North bound second flight	8.03
	18.75

18.75 divided by 2 gives average for two flights over course 9.375 sec., equalling 384 km.p.h.

388.349 and 384 divided by 2 gives average speed 386.174 km.p.h., or 239.95 m.p.h.

The directing official for the N.A.A. was Orville Wright; timers, Odis A. Porter and L. Luzern Custer; observers, Orville Wright, Loring Wright, Charles M. Kelso and George B. Smith.

In a letter to Lieutenant Maitland the Contest Committee of the N.A.A. says:

"It is stated by Mr. Orville Wright, who acted as our official representative, that on two trips over the course your flight was not horizontal, as required by the rules. While we realize that this was unintentional on your part and that there was probably no speed gained by the descent credited against you, still it is impossible for us to accept the figures given. Believe us that it is with sincere regret that we are forced to eliminate your trials.

"You have shown yourself to be one of the greatest high speed pilots in the world, and regardless of our inability to homologate your flight, it will always be felt that you have traveled faster than any human being on earth."

500 *and* 1000 *Kilometer Speed Records*

Lieut. Alexander Pearson, U. S. Army, at Dayton, Ohio, on March 29, is accredited with a record of 270.06 km.p.h., over the course of 500 kilometers. This establishes the first record for speed made over the 500 kilometer course, or a distance of 310.685 miles. He flew a Verville-Sperry airplane with Wright motor of 350 hp.

Lieuts. R. H. Harris and R. Lockwood, U. S. Army, at Dayton, Ohio, on March 29, are accredited with a record of 205.067 km.p.h., over the course of 1,000 kilometers. This record exceeds the record of Bossoutrot and Bernard, made in France in June, 1920, who did the distance in 10 hr., 19 min. 46 sec., by more than five hours—Harris and Lockwood's time being 4 hr. 52 min. 35 sec. They flew a DeHaviland 4L plane with Liberty motor of 400 hp.

Inasmuch as these flights were made in full accordance with the regulations, they have been admitted as official national records and will be submitted by the National Aeronautic Association to the F.A.I. for homologation as official world's records. Existing world's records for the above three tests have been exceeded, therefore it is felt that no difficulty will be experienced and that these marks will be authenticated.

CONTEST COMMITTEE
NATIONAL AERONAUTIC ASSOCIATION OF U. S. A.
Washington, D. C., April 20, 1923

Trials of the Remington-Burnelli Airliner

Through the co-operation of the Engineering Division of the Army Air Service the giant Remington-Burnelli airliner has been undergoing extensive test flights for the past month at Curtiss Field, Mineola, L. I. This ship which was designed for two 600 hp. engines was recently fitted with two Atlantic Galloway motors, and these seem well adapted for the work. The Atlantic Galloway motor is of English manufacture. It is a sixty degree "V" type of heavy duty design, with a cylinder displacement of 2400 cu. in., 1500 r.p.m. and its weight, including the self starter, is 1320 lb. It develops 500 hp. and so far, in the tests, has proven itself both economical and reliable.

With the exception of the power plant (free flow radiators included) the machine stands as originally designed and built, with no changes or adjustments. Its controllability and maneuvering qualities, which were adequate with the former temporary installation of two 400 hp. Liberty engines, have been considerably increased through correct longitudinal balance and higher air speed.

The company's test pilot, Bertrand B. Acosta with William P. Sullivan as assistant, reported that with seventeen passengers and 150 gal. of gasoline the plane took off at two thirds throttle (1875 r.p.m.) in 16 sec., leaving plenty of reserve power, as the tachometer registers 1575 r.p.m. with the throttle wide open. The first thousand feet was reached in less than three minutes. The flight was of forty-five minutes duration. Speed course runs indicate that its maximum speed will exceed 110 m.p.h. The cabin accommodations are for twenty-five passengers, and figured as comfortable for cross country flights.

The two Atlantic Galloway motors installed in the Remington-Burnelli airliner are the largest motors that have been mounted in a multiple motored plane in this country. Following the test flights, which will amount to approximately ten hours in the air and the necessary grinding in of the green valves, it is intended to make cross country flights with the maximum load.

The development of this large commercial plane, designed by Vincent J. Burnelli and built by the Remington-Burnelli Aircraft Corp. is being carried on by Frederick A. Burdett, a well known structural engineer and the designer.

"If war were declared to-morrow what would we do for aircraft?"

Contract Air Mail Services Advertised

Post Office Department Asks Bids on Seattle-Victoria and New Orleans-Pilot Town Services

Sealed proposals will be received at the Post Office Department in the City of Washington until 4.30 p. m. of May 19, 1923, for carrying the United States mails on the two routes hereinafter described from July 1, 1923 (or such subsequent date as the Department may order), to June 30, 1924, in safe and suitable aircraft as follows:

The Two Routes Proposed

1. From Seattle, Washington, to Victoria, British Columbia, about 84 miles, and back, in close connection at Victoria with outgoing and incoming trans-Pacific mail steamers, but not exceeding an average of twelve round trips a month, for the transportation of not to exceed 600 lb. of mail a single trip each way, by a schedule satisfactory to the Postmaster General, the contractor to receive the mails at the foot of Roanoke Street and deliver them at Lake Union at Seattle, and to receive and deliver the mails from and to the steamship at Victoria. Bids to state rate per round trip. Bond required with bid, $2,000.

2. From New Orleans, Louisiana, to Pilottown, Louisiana, about 80 miles, and back, in close connection at Pilottown with outgoing Central American and Havana, Cuba, steamers; and at Pilottown, or Quarantine, with the same incoming steamers, daily except Sunday and holidays, for the transportation of not to exceed 500 lb. of mail a single trip each way, by a schedule satisfactory to the Postmaster General; the contractor to receive and deliver the mails at the foot of Canal Street in New Orleans, and to deliver the mails to the steamships at Pilottown and receive the mails from the steamships at Pilottown or Quarantine. Bids to state rate per round trip. Bond required with bid, $2,000.

Proposals submitted in response to these advertisements will be subject to the Postal Laws and Regulations and to the conditions and requirements set forth in the instructions to bidders, copies of which, together with blank form of proposal with accompanying bond, can be obtained from the Second Assistant Postmaster General, Post Office Department, Washington, D. C., or from the Postmaster at New Orleans, La.

A definite schedule has not been decided upon. The following is a tentative schedule for proposed route No. 2: leave New Orleans daily except Sundays and holidays not later than 4.00 p. m.; leave Pilottown or Quarantine daily except Sunday and holidays not later than 9.00 a. m.

Decision as to award of contract will be made as soon as practicable after May 19, 1923, and the accepted bidder shall execute the formal contract prescribed by the Department covering service advertised with good and sufficient sureties acceptable to the Postmaster General, and file such contract within thirty days from date of acceptance of the proposal. The Postmaster General reserves the right to reject all bids.

The contract may be terminated by Congress, or by the Postmaster General whenever, in his judgment, the interests of the Postal Service shall so require, in which latter event the contractor shall be allowed, as full indemnity, pay for such a number of round trips as shall represent the average monthly requirement, provided, that such termination is not on account of delinquency on the part of the contractor or his agents.

What Bidders Should Do

Bidders should state the number of planes it is proposed to provide for carrying the mails on the route (including the number in reserve for each plane in the air); description of planes, showing number of motors, horsepower, speed, cruising radius.

Bidders and their sureties are urged to acquaint themselves fully with the laws of Congress relating to contracts for carrying the mails (the more important provisions of which are cited herein) and to familiarize themselves with requirements set forth in this advertisement and with the service to be performed before they assume any liability as bidders or sureties, so as to prevent misapprehension or cause of complaint thereafter.

Bidders will be required to furnish bond with two or more individual sureties approved by a postmaster of the first, second or third class, which bond must be acceptable to the Postmaster General, such sureties to be shown to be owners of real estate valued above all incumbrances at an amount double the amount of the bond required, or a surety company which has complied with the provisions of the acts approved Aug. 13, 1894, and March 23, 1910. A list for such surety companies may be found on page 62 of the Official Postal Guide for July 1922, a copy of which is furnished each postmaster.

If the accepted bidder fails to file a properly executed formal contract for the service in the Department within thirty days from the date of acceptance of the bid, or having executed the contract fails to provide the service required, he may be declared a failing bidder or contractor and proceedings taken according to law.

Mail compartments in all planes to be made fireproof to the satisfaction of the Post Office Department.

The Postmaster General may order an increase of service in weight of mail to be transported or number of trips, with the consent of the contractor, by allowing therefor not to exceed a pro rata increase on the contract pay for the mileage or weight involved.

Important Provisions of Contract

The contract for the service shall contain the following covenant:

The contractor expressly warrants that he has employed no third person to solicit or obtain this contract in his behalf, or to cause or to procure the same to be obtained upon compensation in any way contingent, in whole or in part, upon such procurement; and that he has not paid, or promised or agreed to pay to any third person, on consideration of such procurement, or in compensation for services in connection therewith, any brokerage, commission, or percentages; and that all money payable to him hereunder is free from obligation to any other person for services rendered, or supposed to have been rendered, in the procurement of this contract. He further agrees that any breach of this warranty shall constitute adequate cause for the annulment of this contract by the United States, and that the United States may retain to its own use from any sums due or to become due thereunder an amount equal to any brokerage, commission or percentage so paid, or agreed to be paid.

No compensation will be allowed for trips not performed. However, pro rata pay will be allowed for the airline distance between stated points on the route traversed in a partially completed trip, if no delay in the mails over train or boat service has resulted.

Deductions from pay will be made for suffering the mails to become wet, injured or destroyed; or when a grade of service is rendered inferior to that stipulated in the contract; and for the loss of or depredation upon the mails in the custody of the contractor or his agent, provided the loss is occasioned by their fault.

The Postmaster General may annul the contract or impose forfeitures, in his discretion, for repeated failures or for failure to perform service according to contract; for violating the Postal Laws and Regulations; for disobeying instructions of the Post Office Department; for subletting service without the consent of the Postmaster General, or assigning or trans-

fe-ring the contract; for combining to prevent others from bidding for the performance of postal service, and such annulment shall not impair the right of the Department to claim damages from the contractor and his sureties.

No Assignments of Contracts

Assignments of contracts or of interests in contracts are forbidden by law, and consequently cannot be allowed. Neither can bids nor interest in bids be transferred or assigned to other parties. Bidders will therefore take notice that they will be expected to provide the service awarded to them through the whole contract term.

Contractors under this advertisement may be permitted to sublet service to acceptable persons, by permission of the Postmaster General, at not less than the contract rate of pay.

When a bid is signed by an incorporated company, it should be accompanied by evidence of the authority of the person signing the bid so to sign on behalf of the company. Such evidence may be a certified copy of the proceedings pursuant to which the person was elected or appointed an officer or agent of the company and that part of the by-laws showing his authority as such officer or agent to sign the bid; or a certified copy of a resolution of the board of directors or stockholders conferring such authority upon him.

Bids should be for service as stated in the advertisement.

A proposal altered in any of its essential terms cannot be considered in competition with bids submitted in proper form.

Bids should be forwarded in time to reach the office of the Second Assistant Postmaster General not later than 4.30 p. m. of May 19, 1923. Bids received after that time will not be considered in competition with bids received within the prescribed time.

Bids should be sent in sealed envelope, superscribed "Airplane Proposal" and addressed to the "Second Assistant Postmaster General, Washington, D. C."

The Dayton Wright "Chummy" Sport Plane

Safety and Low Maintenance Cost Principal Features, Valuable for Cross Country Work

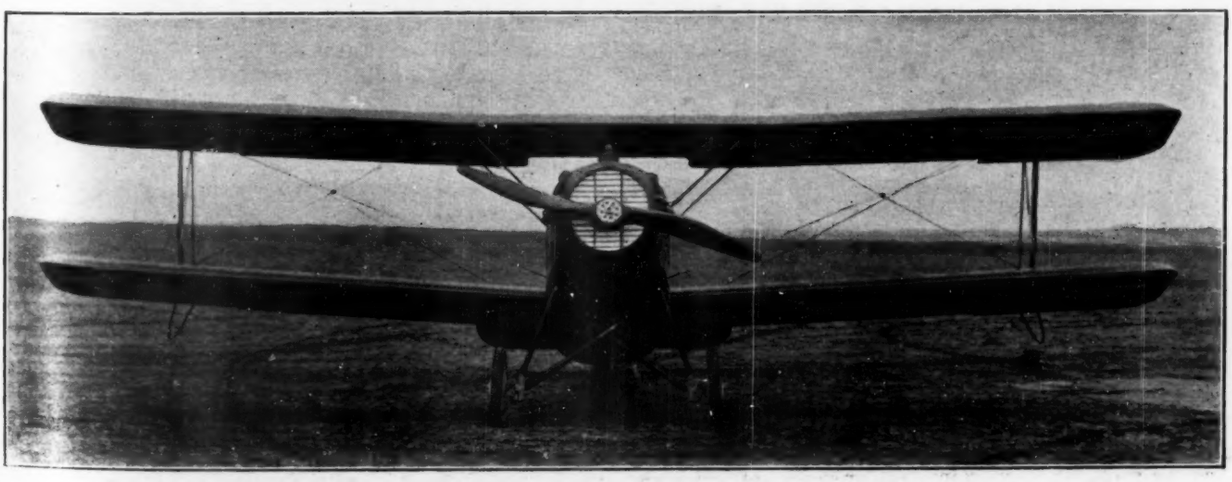
Those interested in airplanes from the sportsman's viewpoint will be enthusiastic over a very modern and practical little machine, the "Chummy," designed and developed by Col. V. E. Clark and built by the Dayton Wright Co.

Recently one of this type using the Wright E180 hp. engine, was tested by Army pilots at McCook Field, then flown across the Allegheny mountains to Bolling Field, Washington, D. C., where it was tested by both Army and Navy pilots, both as a land type and as a seaplane. These trials during which it was flown by more than a hundred different pilots of both Services proved conclusively the claims of the manufacturers, as set down in this article.

The Dayton Wright "Chummy" is an ideal sportsman's plane because of characteristics insuring safety, and because of the utter simplicity throughout, reducing maintenance cost and time to a minimum. Its flight and ground characteristics are such that it can be safely brought into, and flown out of, the smallest and roughest fields. Its design features make it practically "fool-proof." In any sort of stall all controls are perfectly normal and very responsive. A spin is impossible to the novice, and there is no danger of a violent whip-stall, of falling off on a wing, or of side-slipping. Furthermore, it can be landed in any sort of fashion without danger of rolling over or injury to the machine. It has been pancaked from an altitude of a thousand feet.

Safety from Fire Hazard

There is absolutely no gasoline in rear of or in the vicinity of the engine. The entire supply of gasoline is contained in two tanks in the upper wing (giving simple gravity feed) located well to the side of the fuselage. These tanks are protected by heavy "crash-proof" rubber fabric covering. The supply valves are located immediately next to the tanks and are operated by simple remote control with two handles, (one for each tank), located in such position that either occupant can, with a single quick slap of the hand in an instinctive direction, (and within easy reach), close both valves instantaneously, thereby sealing both tanks and preventing flow of gasoline regardless of how badly the airplane may be wrecked. The air intake to the carburetor leads from the open air well outside of the engine compartment. The carburetor is drained by a tube leading through the cowling



Front view of the Dayton Wright Model TW or "Chummy" sport and training plane. See also front cover illustration

"If war were declared to-morrow what would we do for aircraft?"

under the engine compartment. The bottom cowling is well ventilated by louvres.

A tight firewall isolates the engine compartment from the rest of the airplane. There is no combustible material whatever forward of the firewall.

Air and Ground Qualities

Flight tests in which every conceivable maneuver was performed indicate unprecedented flying qualities in this airplane, from the standpoint of safety. The stability in every form is remarkable. It pulls itself out of any dive; the controls are extraordinarily responsive in a stall; the recovery from a complete stall is gentle rather than violent (the nose goes down and not a wing); it is normal in recovering from an upside-down attitude. It is very responsive to all controls in any attitude or maneuver and handles normally at all times; that is, it is never tricky in any manner. All controls are light to the touch, but not too light for training. The machine has been looped, barreled, falling-leafed, etc., but it will not spin under ordinary circumstances.

Many expert pilots who have flown this machine endeavored to spin it. One pilot actually accomplished a spin which appeared to be normal except that the machine fell into the spin very slowly and speed of rotation was quite slow. The recovery, with controls neutral, was perfectly normal with no tendency to spin in the opposite direction. Two other pilots have been able to start the machine into a spin, completing from one-half to a full turn after which the machine went into a normal spiral in spite of the pilot's efforts to maintain a spin. No other pilot has been able even to start a spin. The tendency, when pushing the rudder violently in a stall, is to go into a normal spiral.

It is believed that it would be impossible for a novice to spin this machine, although it may be possible for an expert instructor to teach him the feel while starting into a spin. It is felt that this is the greatest possible step toward safety in learning to fly.

Structural Strength

Complete static tests by the Engineering Division, Air Service, have shown that the factors of safety of all parts are ample for all conditions. All fittings for interplane truss cables are laminated, insuring duplication and safety even though one piece of steel develop a flaw.

The seating arrangement is such that there is no item of weight in rear of either occupant. The long open space between engine and occupants, together with the soft steel tube structure which will bend and not splinter are a notable feature making for safety. Instead of instruments and controls in front of the heads of the occupants, there are pads stuffed with hair 6 in. thick, mounted on a light plywood board. The seats are so located that both men are in rear of both wings and their bracing, so that they can easily get out in case of a bad landing on either land or water. As a seaplane, it takes off quickly and easily from rough or smooth water, and it is easy to land and taxies normally. The floats are of very sturdy construction.

This machine has been landed, taken off, and taxied, with strong cross, quartering, and tail winds. The wide landing gear, together with steerable tail skid, render the machine safe against accidents on the ground. There is no tendency to ground-loop under any condition. The wheels are well forward and the machine has been landed in very soft mud without tendency to nose over.

Cross Country Work

The type of landing gear, although quite heavy, presents many compensating advantages. The elimination of a horizontal cross axle is a notable step toward safe cross country work. The machine can take off in a field of tall weeds or grain in a very short run, when it would be impossible for a machine with the horizontal cross axle. to take off at all, because of the tremendous resistance ordinarily due to the weeds being blown back over the horizontal cross axle by the propeller blast. On an ordinary airdrome, the run to take off and the subsequent climb are extraordinarly good. The control at slow speeds is so responsible, positive, and reliable that the pilot, while maneuvering in approaching, or getting out of a small field, has a feeling of utter confidence—he is "master" under all conditions, and can execute steep turns, slips, and "fish-tails" with perfect safety. The machine does not "float" before landing, but gets on the ground immediately and stops quickly after touching.

The landing gear has proven itself in extended severe service to be remarkably sturdy and reliable. Its ability to cruise at 90 to 100 m.p.h. at extremely low throttle, makes for great fuel economy.

Advantages for Training

The arrangement in which the seats and dual control systems are side by side, permit constant verbal communication and mutual observation between student and instructor. This arrangement conveys to the student, from the very start a great feeling of confidence because he knows at all times just what is happening, and is told at the very moment why it happened. Again, the instructor can watch the student continuously, note his every movement, his mental and nervous condition, and correct faults when they develop—rather than after landing when the lesson is finished and either or both have forgotten precisely what did happen. The observation has been that unless the student can see every move that the instructor makes, there is an ever present doubt in his mind as to the cause of many seemingly mysterious maneuvers of the airplane. He is not sure whether he, the student, was at fault and the instructor touched the control to correct him, or whether peculiar air conditions were responsible. As a result, he takes his first solo flight with the feeling that he is going through an entirely new experience. This condition cannot exist in this machine.

Records indicate that many accidents have occurred because, when flying close to the ground, each man in a tandem machine thought that the other man had the controls, whereas as a matter of fact, neither had them and the instructor discovered this fact too late. This condition is impossible when seated side by side.

Another great advantage of the side by side arrangement is that, oddly enough, the student will not become a "one-side" flier. Most pilots learning in a tandem machine where they can see equally well over both sides, will become unalterably accustomed to looking over the same side in landing and taking-off, and will become so accustomed to turning in only one direction that their turns the other way are comparatively poor. This has been proven a fact and is bad. In the side-by-side the student may be seated first on one side, and then on the other and will be forced to become equally good on both sides.

Successful flying instruction depends upon: First, confidence on the part of the student; second, complete understanding and harmony between student and instructor. This plane insures both.

Maintenance

Simplicity was the very first consideration throughout the entire design and consruction of this airplane. All parts of the power plant are readily accessible and can be inspected, adjusted, removed, and replaced with a minimum of time and effort. The novel wing trussing—only three wires with rigid N strut adjustable for washout—give a wing cell which can be assembled very quickly and upon which, after the N strut is once adjusted, no alignment is necessary after assembly.

A very advantageous feature making toward low cost of maintenance is the division of wing surfaces into panels. Thus the wrecking of one wing tip necessitates only the replacement of one comparatively short panel rather than a unit comprising the entire spread of the wing.

The entire airplane—(fuselage, engine mounting, tail

surfaces, landing gear, interplane struts, etc.)—except for wing panels proper, is made of seamless steel tubing which is not affected by climatic changes however severe. The wing panels are built of spruce with no glue or veneer. In the event of a wreck, the entire rear portion of the fuslage, almost invariably uninjured, may be uncoupled from the forward portion of the fuselage by removing four bolts. The horizontal stabilizer and the wing N struts may be adjusted for horizontal or lateral balance in a few seconds, the only operation necessary being the turning of a hex with a wrench. All tail surfaces may be quickly replaced. The landing gear complete, or a wheel, or an axle, or the tail skid, or the shock absorber may be quickly replaced.

A considerable amount of time and thought in the development of the design of this machine has resulted in the reduction of the number of parts to a minimum, simplicity in construction and assembly of these parts, and interchangeability to an extraordinary degree. As an example, the movable tail surfaces, rudder and right and left elevators, are all identical and interchangeable.

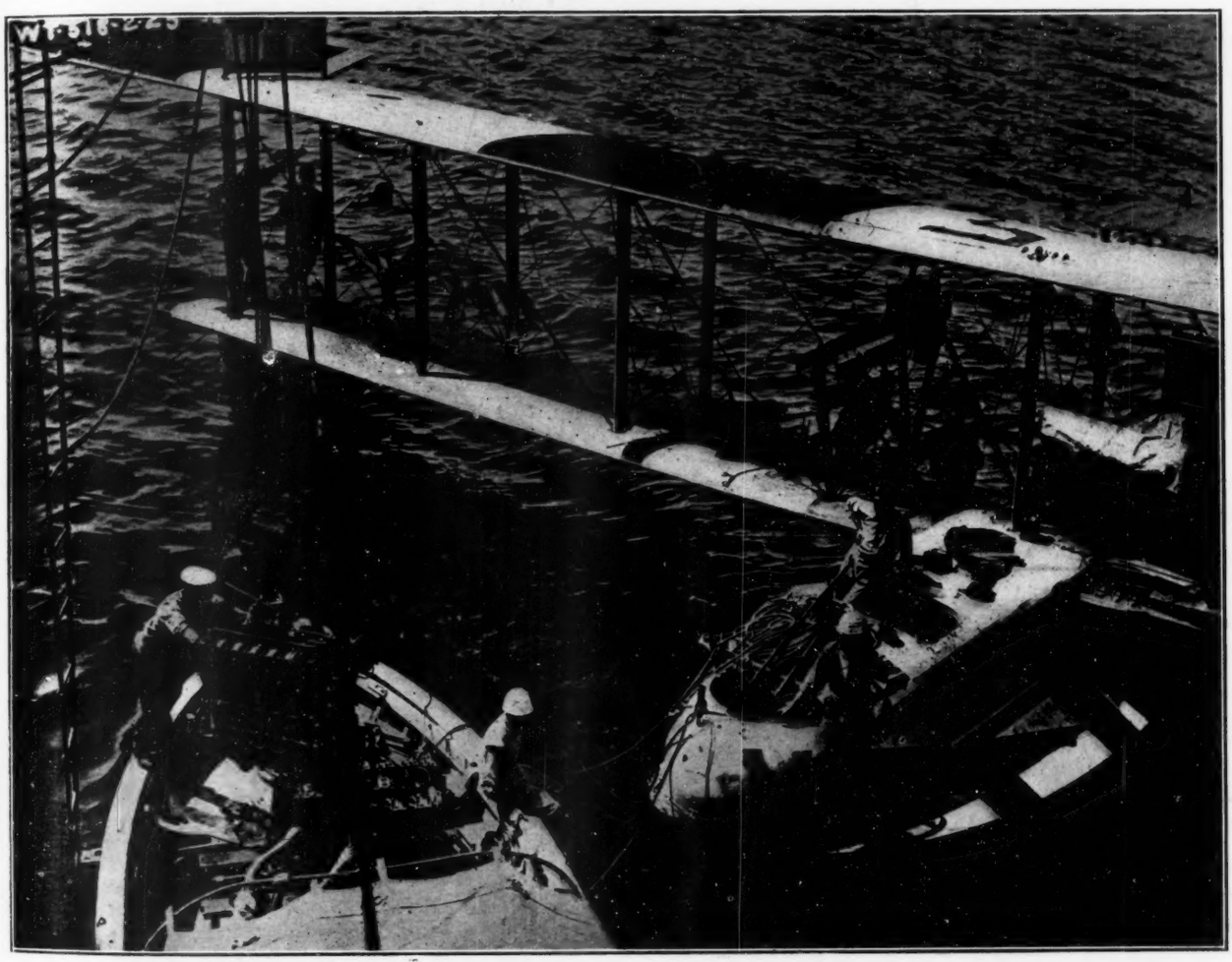
The bay in front of the two pilots is designed solely as a comfortable cabin for two additional passengers, whose weight is exactly at the center of gravity of the machine. This space, 40 cu. ft., can however, be used conveniently for baggage, mail, express, or even for extra fuel tanks.

The machine can be converted from landplane into a seaplane, by three men, in two hours.

CHARACTERISTICS OF THE DAYTON WRIGHT "CHUMMY"

Type, Tractor biplane.
Span, 34 ft. 9½ in.
Overall length, 25 ft. 10¾ in.
Wing chord, 4 ft. 6 in.
Total wing area, 288 sq. ft.
Engine type and horsepower, Wright A, E, I, E2, E3, E4 (150 to 220 hp.)
Weight empty, 1690 lb.
Pilot, 180 lb.
Passenger, 180 lb.
Fuel and oil, 295 lb.
Miscellaneous, 38 lb.
Total useful load, 693 lb.
Total weight loaded, 2382 lb.
Max. speed level (with 180 hp.), 114 m.p.h.
Climb in 5 min. (with 180 hp.), 4800 ft.
Fuel supply (cruising), 3½ hr.

Maintenance Work Afloat in the Naval Aviation



Official Photo U. S. Navy

Plane of Aircraft Squadrons, Scouting Fleet, changing engines after 2700 mile flight from Hampton Roads, Va., to the Canal Zone for the combined fleet maneuvers

"If war were declared to-morrow what would we do for aircraft?"

New Type of Aircraft–the Jumping Balloon

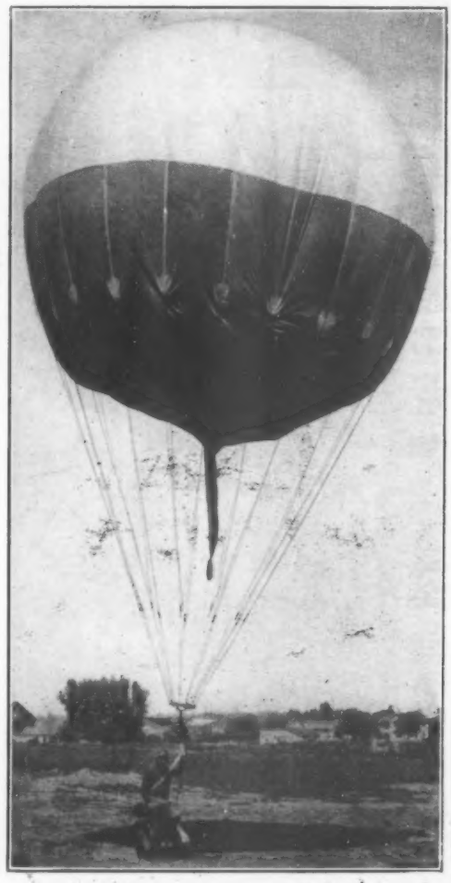
Manually Operated Propeller Gives Five Pounds of Ballast or of Lift

A balloon of 5000 cu. ft. capacity, fully equipped, capable of lifting a 180 lb. man and remaining in the air for four hours at a time with the expenditure of no more than 35 lb. of ballast, may seem like an absurdity to old balloon men. Yet such a balloon actually exists and was developed within the past year by balloon pilots and engineers of the Army Air Service, Engineering Division, McCook Field, Dayton, Ohio.

The Novel Feature

The novel feature embodied in the construction of the above equipment is the addition of a third means of control, consisting of a propeller mounted just below the concentrating point of the rigging, and driven by a rope belt operated by hand. A thrust of above 5 lb. either up or down is easily obtainable with this propeller, which of course means that the equivalent of 5 lb. of ballast or the lifting force of about 70 cu. ft. of hydrogen gas is always available for use. Either a small wicker basket or a parachute harness is suspended to the propeller mechanism for carrying the pilot. When ordinary flights are made the basket is used, but when it is desired to simulate parachute drops or do a bit of jumping over trees, houses, and the like, a regular parachute harness is used.

The gas bag is made of single ply rubberized fabric with a reinforced crown from which point strong balloon tape is cemented to every alternate gore seam, leading to a point a little below the equator. At these points the suspension ropes are attached by means of cemented patches of the standard type. The free ends of the suspension ropes are fitted with snaps. These snaps provide a convenient and quick method for attaching the propeller mechanism with its basket suspension to the above ropes. Instead of using a concentrating ring, the propeller mechanism terminates in a circular metal plate, with holes drilled near its periphery to accommodate the snap fittings of the suspension ropes. The rip and valve cords are led down through the hollow propeller shaft and tied to the basket suspension within convenient reach of the pilot. Provision is also made for carrying a small anchor which can be slipped down to the end of the drag rope in case it is desired to use an anchor in landing. In the many tests that have been made during the past year, however, it has never been found necessary to use the anchor.



Jumping balloon with the pilot in a parachute harness

Ascensions have been made both day and night from back lots in the city of Dayton, and on several occasions landings were made within the city itself. These landings were not accidental, but were a part of the test program for the purpose of proving the ease with which this small balloon may be handled.

Effect of the Propeller Control

When one considers that a free balloon journey in unstable air with ordinary equipment consists of a series of rises and falls, the balloon never reaching a point of equilibrium but each time overshooting the mark due to its momentum, it is at once apparent that a brake of some description that may be used to check the speed of the ascending or descending balloon, would be of great value in prolonging the journey by the saving effected in ballast and gas.

The propeller control may be considered as an aerial brake and in this respect has proven itself of great value in every test that has been conducted with this balloon. The use of this control has proven that it will not only check the speed of the balloon and bring it gradually to its equilibrium point but will readily compensate for all ordinary changes in gas volume due to the shadows of passing clouds and other causes. It can also be used to aid greatly in ascension with a slightly heavy weight off from grounds surrounded by buildings and other obstructions. Any one acquainted with ballooning knows that to get safely out of such places it is the usual practice with ordinary equipment to expend considerable ballast to start with, and this means either going to a high altitude or resorting to valving gas almost as soon as the obstructions have been cleared.

The weight of this balloon with basket, propeller mechanism and drag rope is approximately 150 lb. It can be folded into a small enough bundle to be conveniently carried in a Ford car. The propeller blades are fitted into sockets on the hub of the propeller shaft and are easily removed.

The primary object in developing such a small and light equipment was to provide an economical means for preliminary training in free ballooning and a method more suitable for giving instruction than that used in large balloons where students are taken in the same basket with the instructor, the instructor usually doing all the piloting.

The aim of this new craft is for the pilot to take his balloon connected with a rope to several other balloons similarly connected, each balloon carrying a student and all ascending under the direction of the pilot. In this manner each student has his own aircraft to handle from the very start and is made to feel a responsibility not obtainable with the ordinary method of instructing. A few flights in this manner under an experienced pilot should give the student greater confidence in himself than he could get under the present method of training. Aside from this, four or five small balloons that are able to sail together, each under the control of the pilot, should afford a sporting feature far more agreeable and exciting in every respect than that obtainable with a single balloon carrying the same number of people, for the reason that each man makes his own individual landing. This feature in the use of this small balloon has not been demonstrated fully as yet, but preparations are now under way to make tests and experiments with this object in view.

"If war were declared to-morrow what would we do for aircraft?"

Another very interesting sporting feature as well as quite instructive is for a club possessing several of these balloons to organize a contest in which each pilot is supported by an organized team, using automobiles to follow, through the country. The pilot of each balloon carries a distinguishing mark, such as different colored bands around the gas bag, and the tops of the automobiles may also be fitted with distinguishing marks. The balloons all take off at one time from the same place and are all to remain in the air for a certain time, say one or two hours, when each pilot is then required to land, pack up his equipment, and return to his home station. His support is supposed to aid him in landing, the object being to get back first in order to win first place in the contest. A contest of this description requires not only good knowledge of the roads of the country in which the event is staged, but a knowledge of the wind direction on that particular day. This particular contest was partially worked out last summer, starting from Dayton, Ohio, and finishing near Zenia, Ohio, covering a distance of 16 miles. Every one participating in this event agreed that as a novel sporting feature a contest of this kind has possibilities, as it afforded opportunity for many people to participate in an aerial game of "Fox and Geese".

Some of the Tests

In addition to the experiments and tests above mentioned, the following tests have been conducted with this small balloon:—

(1) Remaining in the air for forty minutes without ballast at an altitude of 1000 ft. and landing safely, using the propeller only as a means of control.

(2) Jumping over obstacles, such as stretches of woods and the like, with the balloon weighed off to an equilibrium balance on the ground. A number of these tests have been made and in each case no difficulty was experienced in remaining above the tree and house tops, using the propeller control only.

(3) Ascending to an altitude of 3000 ft. in unstable air and holding that elevation for one hour, and then landing without using valve or ballast. In this test the propeller only was used to keep the balloon at the 3000 ft. level and to oppose the landing speed from that elevation.

(4) Dispensing with all ballast and ascending rapidly to an elevation of 2000 ft. before the balloon could be stopped in its upward flight by valving. At the 2000 ft. level the balloon came to a stop but so much gas had been dispensed with that the balloon soon picked up considerable speed on its downward journey. After dropping for about 1000 ft. it suddenly parachuted itself and landed its pilot safely. This test was more or less accidental, as it was not intended to carry out a parachuting test at that time. It proved, however, that this balloon will parachute itself in an emergency. This guarantees the pilot a safe landing in case the balloon should, for any reason, lose its gas.

In all the landings that have been made with this balloon in tree tops and among trees and houses, both by day and by night, it is noteworthy that the propeller and propeller mechanism has never been injured nor has it ever caused any inconvenience to the pilot in handling his equipment at that time.

Rights have been tendered the United States Government to use this economical equipment for military purposes such as in giving preliminary training to students in ballooning, testing newly developed meteorological instruments, and affording a safe means of instruction in parachute jumping. Few people actually know just how they should land with a parachute, and few are willing to take training by actually jumping with regular parachute equipment. This small balloon affords a safe and economical means for such training. The student wears the regular parachute harness which is attached to the propeller mechanism instead of using the basket as in ordinary flights. Ascensions up to two thousand feet, or higher are made and the descent controlled by the propeller. With this scheme the student may regulate his control and gradually approach the speed of a parachute drop after he has learned the better methods of striking the ground with his feet at the slower speeds.

Judging from the great amount of interest that has been shown by people who have seen this balloon in operation, it is apparent that a small cheap aircraft of this description should afford an excellent means of greatly stimulating public interest in aeronautical development by getting more people into the air.

It is expected that by the time the next National Balloon Elimination Races are held, "Jumping Balloon" contests will be staged preliminary to the main event.

Book Review

METALS AND THEIR ALLOYS. By Charles Vickers. 800 pp. 110 ill. (Henry Carey Baird & Co., Inc., 2 W. 45th St., New York.)

This is a thoroughly practical book, descriptive of the best in American practice in dealing with metals and their alloys. While it is partly based on "Metallic Alloys" by Brannt, the revision has been so thorough and complete that practically a new book has resulted. The revising author is a thoroughly practical foundryman and a specialist on the subject of alloys.

The chapters on the casting of copper, the making of manganese bronze, aluminum bronze, aluminum alloys, red brass, yellow brass, steam metals and nickel alloys are crowded with formulas together with the physical properties of the alloys and their casting peculiarities. Simplicity is the keynote of this new book on alloys; it is a treasure-house of information for the metal-worker, a convenient reference for the trained technical man, and a source of inspiration for the engineer.

The latest information on the subject of magnesium alloys is presented in the chapter devoted to that subject, and the precautions to be observed when melting and alloying the electron group of alloys are detailed. The chapter on monel metal stands unique, as definite information in regard to the melting and casting of this modern alloy has been so exceedingly difficult to obtain. Another timely addition is the chapter on die-castings which treats of the die-casting of bronze as well as of the low-fusing alloys.

Those interested in the origin and physical properties of the elements, the methods of obtaining them from their ores and of refining them, and their market forms, will find this information in the first part of the book. This section leads up to the discussion of the alloys, which are divided into twelve classes, each with a different metal as base and which include iron and steels and also alloys having zinc as a base. This is followed by a chapter dealing with scrap metals and one touching on the analysis of alloys.

No Oil Prospecting in Spruce Zone

Prospecting for oil or gas upon the military airplane spruce reservation in Alaska was prohibited by a decision announced by the Department of the Interior.

The question came up as a result of an application of Charles P. Jenne for a permit to prospect for oil and gas in the Juneau, Alaska, land district near Mount Fairweather, embraced in which is the airplane spruce reservation to supply timber for the construction of airplanes. This reservation was created by Executive orders issued in 1918.

The Chief of the Air Service of the United States Army in making objections to the issuance of the permit advised the Interior Department that it was not deemed advisable to allow oil or gas prospecting on the timbered areas reserved for military purposes; that in 1922, on consideration of the entire matter, his office had consented to release all of the lands originally withdrawn in 1918, except a heavily timbered tract including the lands sought by the oil and gas applicant.

The decision of the Interior Department called attention to the fact that Section 1 of the Leasing Act expressly excludes from permit or lease any lands withdrawn or reserved for military or naval uses or purposes.

The Story of a Remarkable Engine Endurance Test

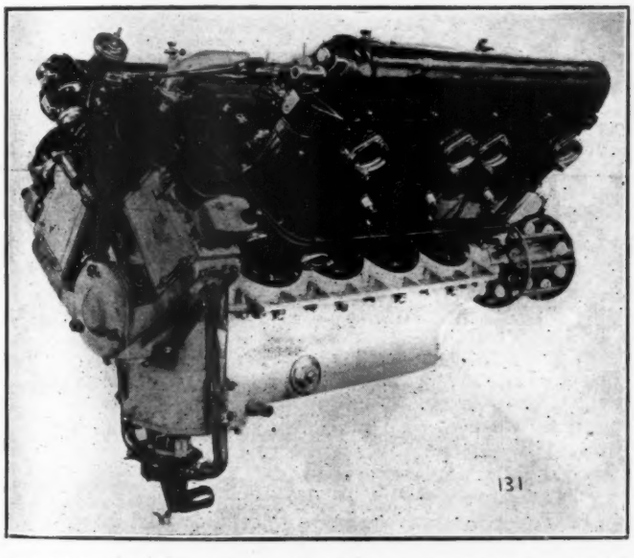
Wright E4 Engine Passes 300 hr. Test with Full Power

During the past year Lieut. B. G. Leighton, of the Bureau of Aeronautics, Navy Department, has been working steadily to bring about improvements in engines, in order to provide greater durability and reliability.

The New 300 hr. Test

During the war duration tests were conducted over periods of fifty hours of running. It was a mark of distinction to pass such a test successfully, although the engines were not run at full throttle, the run was broken into five separate periods of ten hours each, and all ordinary adjustments and replacements of minor parts were permitted. Improvements made to post war types convinced Lieutenant Leighton that a longer period of test than fifty hours was required to measure the life of new engine types. Accordingly, specifications were drawn for an endurance test of 300 hr., although the engines were only required to develop about six-tenths of their rated horsepower. As certain types of engines successfully met this test, new specifications were arranged, requiring engines to operate at full rated horsepower and to use standard aviation gasoline.

Some time ago a Wright E2 engine was submitted to this latter test. The test was conducted at Anacostia, under the direct supervision of the Bureau of Aeronautics. It was found that the E2 performed very well up to 125 hr., but at the conclusion of that period of running the valves and valve seats particularly, and the pistons were in bad condition, requiring replacement before continuing the test. In connection with the life of the E2 engine at full throttle, it is interesting to note



The Wright E4 200 hp. engine which successfully passed the 300 hr. full power test of the Navy Department

a statement recently given out by Lieutenant Leighton in a paper read before the Washington Section of the Society of Automotive Engineers. The fact is brought out in this paper that the Liberty engine, which is a war development, and by many still considered to be the standard of durability, has an average life of 72 hr. between overhauls, and under substantially the same service conditions. It is, therefore, apparent that, while the E2 was not capable of successfully meeting Lieutenant Leighton's full throttle endurance test, it, nevertheless, showed remarkable improvement over war time standards of reliability.

Meanwhile, the Wright Aeronautical Corp. was developing a new type of cylinder design. This design was first worked out on their twelve cylinder 600 hp. type, known as T2, and incorporated in that type. With Lieutenant Leighton's permission, it was determined to construct a pair of cylinder blocks of this new type, and again make an effort to meet successfully the Navy's full throttle endurance test. This type engine, which is in current production, is known as type E4 and is the very latest Wright development in the 200 hp. size.

In order to measure the length of life of certain of the major parts of the engine, the new type of E4 cylinder blocks were mounted upon the same engine which had previously run 250 hr. of full throttle on the E2 test. No changes were made in the engine, except the replacement of the E2 cylinder blocks with the E4 type.

How the E4 Completed the Test

This E4 engine has just completed a successful 300 hr. full throttle test. Certain press dispatches in connection with the completion of this test erroneously stated that the E4 engine had been operated continuously for a period in excess of 500 hr. As a matter of fact, not even the last 300 hr. of running were continuous. No involuntary stops were made during this latter period, but several voluntary stops were made, principally to change clubs, as the engine was operated on a torque stand with the clubs exposed to the weather. Moreover, the early part of this test incorporated certain tests of lubricating oils, and one or two stops were made for the purpose of changing oils. However, the engine did operate throughout the 300 hr. period without failure of any part, either major or minor, and the valves and pistons were in almost perfect condition at the conclusion. In fact, the engine was pulling a trifle more horsepower at the conclusion than at the beginning of the test. Throughout the run it averaged approximately 205 hp.

Disassembly of the engine and inspection disclosed the fact that a ball bearing retainer ring had broken away, and, very probably due to this, one of the crankcase studs was broken. Neither of these damaged parts, however, interfered with the running of the engine or with its ability to develop its maximum power at the finish.

In the past the limiting features of long durability at full throttle have been, primarily, valves, pistons and connecting rod bearings. In the E4 type of cylinder construction, it seems that the Wright Company have set up an entirely new standard for these parts. The Wright engineers believe that much of this success is due to the new silchrome tulip valves and the new type of bronze valve seats, and in the case of bearings to the use of Kelmet.

A Long Life Power Plant

Of utmost interest to service possibilities of the E4 engine is its comparison to its predecessor, the E2. Under full throttle endurance test, the life of the E2 was apparently 125 hr., as against 300 hr. or more for the E4 under the same conditions. It is a fact that in actual service the E2 may be operated for at least 100 hr. between overhauls, which, of course, indicates a much better service life for the E4. The superiority of these improvements for the training plane engine or for commercial projects, as compared with other types, is obvious, as it seems reasonable to believe that the life of the basic parts of the E4 is likely to be more than that of the plane in which it is mounted.

Wright engineers believe that the results of this test indicate very conclusively that the operating life of the E4 engine, between overhauls, may be expected to be at least six times the life which in the past has been realized with service types of engines.

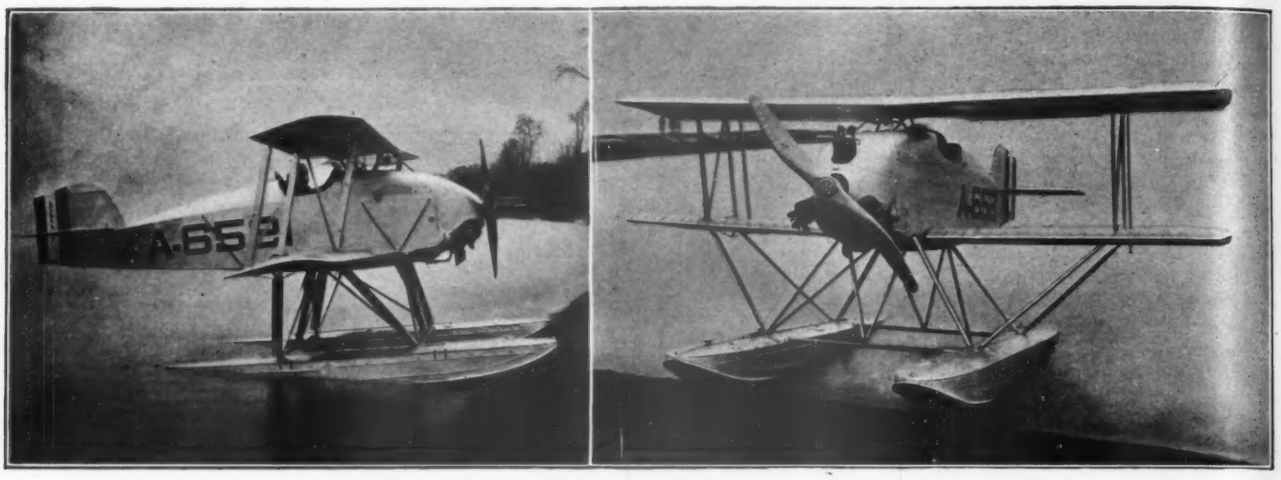
"If war were declared to-morrow what would we do for aircraft?"

A Shipboard Scout Seaplane: the Martin-Navy

Metal Construction and Small Size its Chief Features

Tests have just been completed on Lake Erie at Cleveland of the Navy's latest seaplane, the MS1, designed by the Navy for shipboard use and developed by the Glenn L. Martin Company. So far as is known, it is the smallest seaplane ever built.

This machine is entirely built of metal with the exception of the covering. It is 18 ft. in span, 17½ ft. long and 7½ ft. high from the water line. Its actual weight is less than 650 lb. Notwithstanding its small size, it is a real airplane, handling and maneuvering in the air as well as much larger planes. While it is not permissible to give actual performances, its speed is quite high, considering that it is a seaplane and that its motor is of low horsepower.



Two views of the Glenn Martin Model MS1 Navy scout plane for shipboard use. The engine is a 60 hp. Lawrance, Model L4S

The power plant is a Lawrance, model L4S, 3 cylinder, air-cooled motor of 60 hp. It carries a 6½ ft. propeller. The motor is mounted on a vertical bulkhead at the end of a rectangular fuselage built up entirely of steel tubing. The method of assembling the fuselage is worthy of special note. It is built in a jig, the various members being held in place by special clamps until all the fittings have been made. This results in a perfectly rigid structure which requires practically no truing up. The fittings themselves are quite simple being attached in place by rosette welding. This method, which was developed at the Martin factory, consists of drilling holes through both the main members and the fittings and torch-welding the material around the radius of the holes. Tests on this type of fitting have shown exceptional strength while it also allows for a minimum of weight.

The pilot's cockpit is roomy and all the controls and instruments are readily accessible. Outside of radio equipment, no military load is carried.

The tail surfaces and wings are made up entirely of duralumin, channel sections being used largely for the bracing, while the ribs are stamped out of the material in one piece. Two-inch tubular duralumin is used for the wing beams. The leading and trailing edges are of channel duralumin riveted to the ribs. The wings, as well as the fuselage and tail surfaces, are covered with linen.

The wing interplane bracing is accomplished by one set of "N" struts on each side. The flying and landing loads are taken by diagonal struts between the floats and the outside of the lower wing. The lower wings are attached to the fuselage bottom longerons, while the upper wings join at a cabane section above the fuselage. This arrangement permits of easy assembling or dismantling in case it is desired to stow the plane in a very small space.

Unique in seaplane construction are the floats. These are entirely of duralumin, the structure being built up of channel section bracing with water tight bulkheads. The float fittings for the brace struts to he plane structure are aluminum alloy castings. Sheet duralumim is used for the float covering. All joints are made water tight by the use of wicking, impregnated with marine glue, placed in the joints at the time of riveting.

All interplane and float struts are streamlined with sheet duralumim. The gasoline tank is of welded aluminum and holds twelve gallons—sufficient fuel for a flight of two hours at full speed.

Aeronautical Patents

Granted April 3, 1923

1,450,431 Landing Indicator for Aircraft. Roger Courtois-Suffit, Paris, France.

1,450,454 Lever-Controlled Paddle-Action Flying Machine. Alexander B. Roney, Chicago, Ill.

1,451,117 Landing Gear for Airplanes. Edward W. Rounds, Washington, D. C.

1,451,197 Airplane Gun Mounting. John P. Ball, Chicago, Ill.

1,451,352 Airplane. Frank B. Voracek, Portland, Ore.

1,451,385 Manually Propelled Flying Machine. Joseph Ardo, Newhall, W. Va., assignor of one-half to Kalman Horvath Newhall, W. Va.

1,451,415 Airplane. Gustavus Bess, Scappoose, Ore.

1,451,493 Stopping and Landing Mechanism for Airplanes, Dirigibles, Balloons, and the Like. James H. Cruickshank, Big Indian, N. Y.

1,451,503 Dirigible Airship. Henry A. Goetz, Chicago, Ill.

1,451,541 Method of and Apparatus for Making Propellers. Louis T. Frederick, Wilkinsburg, Pa., assignor to the Westinghouse Electric & Mfg. Co., a Corporation of Pennsylvania.

1,451,667 Dirigible and the Like. Ralph H. Upson, Akron, Ohio, assignor to The Goodyear Tire and Rubber Co., Akron, Ohio.

"If war were declared to-morrow what would we do for aircraft?"

Howard E. Coffin, Pres. B.H. Mulvihill, V. Pres.

Official Bulletin of National Aeronautic Association of U.S.A.

B.F. Castle, Treas. John B. Coleman, Rec. Sec.

Col. H.E. Hartney, General Manager Cable Address, Nataero
National Headquarters, 26 Jackson Place, Washington, D.C.

The National Aeronautic Association of U.S.A. assumes responsibility for the statements under this heading

OFFICIAL RECORDS OF AERONAUTICAL PERFORMANCES IN UNITED STATES

There seems to be some misunderstanding throughout the country in regard to the connection between the National Aeronautic Association of U.S.A. and the Fédération Aéronautique Internationale, with respect to the authentication of records by the Contest Committee of the National Aeronautic Association covering record performances in the United States.

The Press of the country sent out statements concerning the recent attempt by the Army Air Service to secure the world's record in aeronautical performance at Dayton, printing therein that French officials were at Dayton to time the contestants and that the F.A.I. was in control, together with other misleading statements, ignoring the N.A.A. altogether.

The truth of the matter is contained in the following:

"The National Aeronautic Association of U.S.A. is now the sole American representative of the Fédération Aéronautique Internationale, and in the future, all contests, flights for records, sports and meets in this country, in order to be homologated for purposes of world's records, must be under the rules and regulations of the Association by virtue of its affiliation with the F.A.I.

"Under the F.A.I., the Association appoints committees responsible for the enforcement of the rules of the Federation, issues licenses to pilots, and for meets and races; sanctions meets, races and sports; classifies aircraft; examines and passes upon regulation and programs for contests; ratifies results; may bar suspended persons from participating in events; passes upon the advisability of events; designates approval of officials and appoints timekeepers; gives official ratification to records and imposes penalties; pronounces the homologation of international events, and gives final decisions as to international records."

Confirming the above, Col. Frank P. Lahm, Chairman of the Contest Committee of the N.A.A. has sent to the Press Associations and the Editors of the newspapers throughout the country the following communication:

"The National Aeronautic Association of the U.S.A. is the American member and sole representative in the United States of the confederation of world aeronautical bodies—the Fédération Aéronautique Internationale, whose headquarters is in Paris, France.

"As sole representative the National Aeronautic Association of U.S.A., with headquarters in Washington, D. C., sanctions all official aeronautical race events in this country. Its Contest Committee appoints all official starters, timers and observers.

"No officials from France or any other country of the Fédération Aéronautique Internationale officiate at any race meet in the United States. The F.A.I. statues are observed to the letter at all sanctioned American contests.

"The authentication of a record by the Contest Committee of the National Aeronautic Association of U.S.A. is accepted by all clubs and federations affiliated with the F.A.I. as final."

At Dayton, in control of the speed trials at Wilbur Wright Field, now being carried out by the Army Air Service, the officials appointed by the N.A.A. are all Americans and are as follows:

Chief Timer: Odis A. Porter, Stand No. 1.
Ass't Timer: L. Luzern Custer, Stand No. 2.
Directing Officials: Orville Wright of the Contest Committee of the National Aeronautic Association as Official Observer at Station No. 1.

Lorin Wright of the Contest Committee of the National Aeronautic Association as Assistant Official Observer at Station No. 2.

Charles M. Kelso: acted as observer at the 500-meter point before station No. 1.

George B. Smith: acted as observer at the 500-meter point before station No. 2.

These officials were in charge of the flights of Lieut. R. A. Maughan and Lieut. L. B. Maitland, when Lieutenant Maitland broke the world's record for one kilometer course, establishing an average speed of 239.95 m.p.h.

It is hoped that this explanation will be sufficient to set at rest for all time the question of who is the authority in this country for authenticating official records of aeronautical performance.

THE N.A.A.'S MEMBERSHIP CAMPAIGN

The membership campaign now being conducted by the Association is in full swing and progressing most satisfactorily. There is an awakening throughout the entire country to the fact that the Association's motto "America First in the Air" is a serious mark which Americans must try to attain. In consequence of this the membership campaign is rolling up impetus which, beyond question, will exceed the mark set for June first, 50,000 members. Reports from the field indicate that the membership will probably reach 100,000 by that time.

Below is a supplementary list of the officials of the Association and the District chairman, a list which is being augmented daily.

FIRST DISTRICT

The District Chairman and treasurer is Col. Edgar S. Gorrell, President of the Boston Marmon Co., The Executive Secretary is Roger Merrill of Boston.

State Advisory Committees

Maine

W. H. Gannett, Editor and Publisher, Chairman, and Ralph Webber, Secretary, both of Augusta, Me.

New Hampshire

Maj. Frank Knox, Chairman, and Guy L. Foster, Secretary, of Manchester, N. H.

Rhode Island

Governor Wm. S. Flynn, Chairman, Providence, R. I.

Vermont

Governor Proctor is Chairman of the Advisory Committee and Col. Ernest W. Gibson of Brattleboro is Chairman of the Campaign Committee. Frederick Harris of Brattleboro is to form a chapter there.

SECOND DISTRICT

The Executive Secretary is Evan J. David of the John Price Jones Corp., New York City. The District Advisory Committee is made up of the following men: Howard S. Borden, Milton F. Davis, John D. Larkin, Charles E. Merrill and Palmer Pierce, all of New York.

THIRD DISTRICT

The Executive Secretary is R. P. Strine of Philadelphia.

FOURTH DISTRICT

The District Chairman is Charles A. Moffett, President

British "Light Plane" Competition

The Royal Aero Club of Great Britain will organize in September next a Light Plane Competition open to machines fitted with engines the total cylinder capacity of which must not exceed 750 cubic centimeters. It is proposed that the starts should be made off a hill, and a triangular course of not less than 15 miles with a range of hills on one side will be used. One gallon of gasoline only will be allowed, and the weight of the pilot must be made up to a minimum of 168 lb.

In addition to the actual flying the question of transport will be considered, and competitors will be required to demonstrate that the machine is capable of being transported a distance of one mile by two persons without the use of extraneous tackle, in a period not exceeding three hours. The selected course for this test will include getting out of a field through an ordinary gateway and proceeding along a country road. The competition will probably extend over a week early in September.

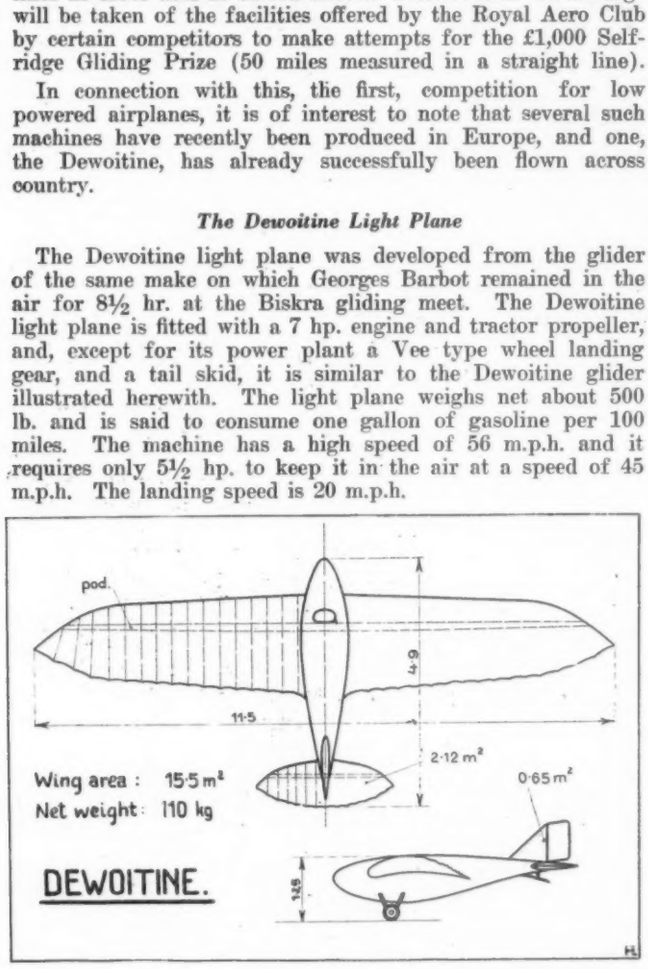
The Duke of Sutherland, Under-Secretary of State for Air, has given a prize of £500, through the Royal Aero Club, for the longest flight in this competition (minimum 50 miles), and other prizes will be forthcoming.

In addition to the light plane contest, competitions will be arranged for gliders without engines on somewhat the same lines as those held at Itford Hill in October last. Advantage will be taken of the facilities offered by the Royal Aero Club by certain competitors to make attempts for the £1,000 Selfridge Gliding Prize (50 miles measured in a straight line).

In connection with this, the first, competition for low powered airplanes, it is of interest to note that several such machines have recently been produced in Europe, and one, the Dewoitine, has already successfully been flown across country.

The Dewoitine Light Plane

The Dewoitine light plane was developed from the glider of the same make on which Georges Barbot remained in the air for 8½ hr. at the Biskra gliding meet. The Dewoitine light plane is fitted with a 7 hp. engine and tractor propeller, and, except for its power plant a Vee type wheel landing gear, and a tail skid, it is similar to the Dewoitine glider illustrated herewith. The light plane weighs net about 500 lb. and is said to consume one gallon of gasoline per 100 miles. The machine has a high speed of 56 m.p.h. and it requires only 5½ hp. to keep it in the air at a speed of 45 m.p.h. The landing speed is 20 m.p.h.



Courtesy *Letectvi*

Outline drawings of the Dewoitine glider

On April 2, M. Barbot made a first flight with this machine, and on the following day he took it up to a height of 1500 ft. and flew it from Francazal airport across country to Toulouse, where after circling the city he landed in the street in front of the Dewoitine factory.

In England there have also been produced light planes of late. One of these machines, built to the designs of Mr. Shackleton by the Air Navigation and Engineering Co. of Addlestone, is a cantilever monoplane fitted with a 20 hp. Bristol "Cherub" engine, and in general resembles the Dornier "Komet."

The other English light plane, the "Wren", which was designed by W. O. Manning and built by the English Electric Co. of Preston (Lancs.) is also a cantilever monoplane, but it is fitted with a 7 hp. A.B.C. motorcycle engine. This plane greatly differs in appearance from the A.N.E.C. light plane, and is more reminiscent of the Hannover glider, the more so as it has no apparent landing gear, the wheels being carried inside the fuselage, where they are almost entirely concealed.

The "Wren" is 37 ft. in span, 23 ft. long and just under 5 ft. in height, and it weighs net 210 lb. The machine was flight tested by Sqd. Leader Maurice Wright, first in a few straight aways, and then in a flight of 7 min. duration, and it behaved very satisfactorily despite a strong wind. The high speed is given as 40 m.p.h. and the horsepower required for flight as 3½ hp.

Army Airship RN1 Completed

In the plant of Airships Incorporated, at Hammondsport, N. Y., there has just been completed the largest nonrigid airship for the Army Air Service to which it was delivered.

The new ship, called the RN1, has a capacity of 325,000 cu. ft. and is 262 ft. long and about 48 ft. in diameter. The power plant consists of two 400 hp. Liberty engines which give the ship a maximum speed of 60 m.p.h. The service ceiling is 10,000 ft. and the gross lift 22,000 lb. The envelope is made of special three ply rubberized fabric, which is coated on the outside with aluminum. The car, 50 ft. in length, can accommodate a crew of twelve, which will be the standard complement of the airship. From the car a tunnel extends upward through the envelope to a fighting platform on top, where room is provided for a machine gunner and two observers.

The RN1 will be stationed at Scott Field, Belleville, Ill., where she will be used in connection with training activities. At Belleville there is located the second largest airship shed in the country, which is second in size only to the naval airship shed at Lakehurst, N. J.

Notice to Aviators

Boston Airport

In Notice to Aviators 2 (2) of 1923 it was stated that the Boston Airport would be ready for use early in the spring of 1923. Information has now been received from Headquarters First Corps Area, Army Base, Boston, that the field at the Boston Airport may not be ready for use until June and that landings can not be made on the runways at present as they are less than 50 per cent completed.

Further notice will be given when this field is ready for operation.

(N.A. 4, 1923.)

U. S. Coast Survey Chart 248.

* * *

Fairfield, Ohio

Radio towers—Two steel radio towers, 160 ft. high and 475 ft. apart, have been erected at Fairfield Air Intermediate Depot, Fairfield, Ohio. These towers are located due west of the large brick warehouse between the garage and the post gymnasium. The towers will be illuminated in accordance with existing instructions as soon as the final inspection has been made.

(See Notice to Aviators 1 (1) of 1922, p. 17.)

(N.A. 4, 1923.)

"If war were declared to-morrow what would we do for aircraft?"

of the Gulf States Steel Co. of Birmingham, The Executive Secretary is L. L. Boyer, of Birmingham.

Georgia

The Chairman of the State Membership Campaign Committee is L. W. Roberts, Jr., and the Vice Chairman J. E. Addicks, both of Atlanta.

Mississippi

The Chairman of the Advisory Committee is Governor Lee M. Rudsell of Jackson.

South Carolina

The Chairman of the Advisory Committee is Governor Mc Leod of Columbia.

Tennessee

The Chairman of the Advisory Committee is Governor Peay.

FIFTH DISTRICT

The District Chairman is the Hon. Newton D. Baker of Cleveland, Ohio, and the Executive Secretary is Carl B. Squier of Cleveland.

Ohio

The Chairman of the Membership Campaign Committee is Frederick B. Patterson of the National Cash Register Co. with John Ahlers as Assistant. A. W. Henn is also on this Committee.

Indiana

F. E. Moskovics, Vice President of the Marmon Co., is the Chairman of the Membership Campaign Committee in Indianapolis.

SIXTH DISTRICT

The District Chairman is Samuel M. Felton, President of the Chicago and Great Western Railway, and Thomas L. Munger is the Executive Secretary. The Treasurer is Frank Whiting, also of Chicago.

Michigan

Detroit: The membership committee in Detroit is composed of the following men:—E. A. Loveley, Charles Bush, William F. Metzgerm, Col. W. H. Alden, D. S. Stearns, S. W. Utley, George Holley, W. A. Mara, Col. J. G. Vincent and Col. Edgar Goodloe.

Bay City: The Chairman of the Membership Committee is L. P. Koepfgen.

Wisconsin

The Chairman of the Membership Committee at Milwaukee is Stephen J. McMahon, with F. A. Vaughn also on the Committee.

SEVENTH DISTRICT

The District Chairman is Joseph Pulitzer of St. Louis, Mo. and Roy R. Fisher is Executive Secretary from Davenport, Iowa.

Minnesota

Governor J. A. O. Preus of St. Paul is Chairman of the Advisory Committee.

Kansas

Governor Johnathan M. Davis of Topeka is the Chairman of the Advisory Committee.

Iowa

Davenport: Hon. Alfred C. Mueller, Mayor, is Chairman of the Advisory Committee, J. A. Russell is chairman of the Membership Campaign Committee with B. Richardson as Secretary.

Cedar Rapids: R. G. Grassfield is Chairman of the Membership Campaign Committee, Charles D. Manson, Secretary with the following members: Judge J. H. Treqin, P. C. Rude, Forest McCook, Victor Obenauer, and Peter Hoyt.

Waterloo: Chairman of the Membership Campaign Committee is Milo H. Miller, with the following members: Hon. W. W. Marsh, John T. Sullivan, and L. B. Strothman.

EIGHTH DISTRICT

The Chairman of the District Committee is Dr. Frederick Terrell of the City National Bank of San Antonio, Texas, with J. R. Riley as Executive Chairman and Treasurer, and George L. Rockwell of San Antonio also, as Executive Secretary.

Texas

Galveston: Ralph Kern U. S. Engineer is Chairman of the Membership Campaign Committee.

Houston: Alva W. Snyder, is chairman of the Membership Campaign Committee.

Oklahoma

Governor J. C. Walton is chairman of the State Advisory Committee.

NINTH DISTRICT

The District Chairman is Cecil B. DeMille of Hollywood, with L. F. Parton of SanFrancisco as Executive Secretary and Geo. B. Harrison of Los Angeles, secretary for the southern section of this district.

San Francisco: State Advisory Committee is made up of the following men:—Mayor Rolph, Chairman, Lt. Col. Gilmore, J. C. Irvine, Col. Ansen Wright, Albert Michelson, Judge Sylvester J. McAttee, T. R. Reed, Fred A. Tillman.

Los Angeles: The Advisory Committee is made up of Ewell D. Moore, George L. Metcalfe and Guy Moyston.

Nevada

Governor Scrugham is the chairman of the Advisory Committee.

Utah

Governor Charles R. Mabey, is chairman of the Advisory Committee for Utah.

The "Zenith" Aviation Cup

An international competition has been organized by the Aero-Club of France for a trophy and prize-money amounting to 135,000 francs subscribed by the Société du Carburateur Zenith. The cup will be competed for for three years and is limited to machines whose gasoline consumption will permit them to make a return flight between Paris and Lyons on 275 kg. of fuel. The average speed on each lap must not fall below 70 km.p.h. The winner of the competition will be the machine which covers the course with the least consumption of fuel per kilogram of useful load carried. The winner each year will receive a sum of 30,000 francs and a bronze replica of the Zenith trophy. Five other prizes of 5,000 francs, 3,500 francs, 2,500 francs and two of 2,000 francs will be awarded to the second to the sixth placed machines.

For 1923 the Coupe Zenith will take place on July 21-22 from Orly airdrome, near Paris.

Entries, which must be accompanied by an entry fee of 1,000 francs per machine, of which 500 francs will be returnable to bona-fide starters, must be received before June 1, 1923, by the Secretariat de la Commission d'Aviation, l'Aéro-Club de France, 35 Rue François Ier, Paris.

Airplanes to Aid Agriculture

Aerial photography as an aid and check in estimating cotton acreage is to be tried this year by the United States Department of Agriculture. Photographs of land in cotton and other crops will be made over selected areas from War Department airplanes lent to the Department of Agriculture for use in fighting the boll weevil.

"If war were declared to-morrow what would we do for aircraft?"

ARMY AND NAVY AIR NEWS

U. S. Army Air Service

Summer Training Camps—The summer training period will extend from June 1 to Oct. 1. It is estimated that 223,000 men will attend the National Guard, Organized Reserves, Reserve Officers Training Corps and Citizens Military Training Camps. Approximately 30,000 officers and men of the Regular Army will assist in the training for instruction and demonstration purposes.

The following is a summary of the Air Service training camp activities for the summer by Corps Area:

First Corps Area (Me., N. H., Vt., Mass., R. I. and Conn.)—Mitchel Field, N. Y.: Org. Res. Air Service, H/A, July 8—Sept. 18 (15 day periods).

Second Corps Area (N. Y. N. J. and Del.)—Camp Upton, N. Y.: National Guard N. Y. 212th Art. (Anti-Aircraft), July 14-28; National Guard Del. 198th Art. (Anti-Aircraft), Aug. 4-18; Org. Res. Anti-Aircraft, Aug. 1-15.

Mitchel Field, N. Y.: Org. Res. Air Service, July 15-29; R.O.T.C. Air Service, June 14-July 25.

Third Corps Area (Md., Va., D. C.)—Langley Field, Va.: National Guard Md. 29th Div. Air Service, July 28-Aug. 11; Org. Res. 3rd C.A.C. Air Service, July 29-Aug. 12.

Fourth Corps Area (N. C., S. C., Ga., Ala., Tenn., Miss., La. and Fla.)—Maxwell Field, Ala.: National Guard Ala. 135th Obs. Sq. and 133rd Photo Sec., Aug. 16-30; National Guard Tenn. 136th Obs. Sq., Aug. 1-15; Org. Res. Air Service of 81, 82, 87 Inf. Div. and 4th Army Corps, July 14-28; R.O.T.C. Air Service, June 14-July 25.

Fifth Corps Area (Ohio, W. Va., Ind. and Ky.)—Wilbur Wright Field, Ohio: National Guard Ind. 113th Sq. and Med. Det., Aug. 5-19; Org. Res. Air Service, July 8-22.

Sixth Corps Area (Ill., Mich., Wis. and Jefferson Bks, Mo.) Chanute Field, Ill.: Org. Res. Air Service (H/A), July 17-Aug. 3; R.O.T.C. Air Service, June 14-July 25.

Scott Field, Ill.: Org. Res. Air Service (L/A), July 17-Aug. 3.

Selfridge Field, Mich.:Org. Res. Air Service (H/A), July 17-Aug. 3.

Seventh Corps Area (Mo. less Jefferson Bks, Kans., Ark., Iowa, Neb., Minn., N. D. and S. D.)—Richards Field, Kansas City, Mo.: Org. Res. Air Service, July 16-30.

Fort Snelling, Minn.: National Guard Minn. 109th Obs. Sq., Sept. 1-15.

Seventh Corps Area troops to be trained in other corps areas: Fort Sill, Okla.: National Guard Ark. 141st Art. (Anti-Aircraft) and National Guard Mo. 203rd Art. (Anti-Aircraft), Aug. 6-20.

Eighth Corps Area (Tex., Okla., Colo., N. M. and Ariz.)—Brooks Field, Tex.; Org. Res. July 15-29; R.O.T.C. Air Service, July 14-25. Fort Bliss, Tex.: Org. Res. Air Service, July 15-29.

Ninth Corps Area (Wash., Ore., Ida., Mont., Wyo., Utah, Nev., and Calif.)—Crissy Field, San Francisco: Org. Res. Air Service, July 29-Aug. 12; R.O.T.C. Air Service, June 14-July 25.

* * *

First Photo Section—The First Photo Section, which has been stationed at Fort Bliss, El Paso, Tex., since last June, is now functioning. Arriving from Kelly Field with one photographer and two chauffeurs, its development was badly set back by the death of Lieut. Halsey Bingham, its commanding officer. At the same time Staff Sergt. Wilbur R. Rhodes was badly injured and lay in the hospital for several months. On the arrival of Lieutenant Wriston, now commanding, an attempt was made to put the Section on its feet. The first prime necessity was a place to work. Requisition was made for equipment and same has been arriving until now the Section has the majority of the equipment needed. The Staff of the 1st Cavalry Division, to which the Division Air Service it attached, on request for suitable quarters, assigned a wing of the new E. & R. Building, 30 ft. wide and 100 ft. long. No trained personnel being available, new personnel was trained.

The Section was highly commended by General Mitchell on his recent tour of inspection, while Lieut. Geo. W. Goddard, who guides the destinies of the Photo Sections in the Chief's Office, states that "It was one of the best Photo Section laboratories in the country."

Although working under great difficulties, the Section has been commended for its work by the General Staff of the 1st Cavalry Division. An extensive aerial photography program is under way at present to include much western territory. Lieut. Wriston will personally conduct the work. He will be assisted by Sgt. Rhodes, who was in the crash at Leadville, Colo., when Lieut. Bingham lost his life.

* * *

Photography Work at Crissy Field—The work of photographing the seaports of the west coast was resumed last week by the 15th Photo Section when Lieutenant Goldsborough, pilot with Sergeant Klutz, photographer, and Private Fatt, pilot, with Private Carlow, photographer took off for the north. This work was commenced some weeks ago and terminated next day when Lieutenant Maughan had a forced landing in the river near Eugene, Ore., losing maps, camera, ship and Private Carlow's new civilian overcoat. The present expedition has new ships, maps and cameras and when last heard from was in the vicinity of Eugene.

With the return to duty recently of Lieutenants Barnett, Benton, Maxwell and Selff the O.D. situation has been considerably relieved. Lieutenant Selff and family returned from a leave spent in New England via the Panama Canal and the Hawaiian Islands, thus qualifying all hands for naval longevity ratings.

Col. Gilmore, Air Officer, 9th Corps Area, escorted a formation of six planes to Mather Field last week, returning the same day. The Colonel is flying a new modified DH brought up from Rockwell recently by Lieutenant Miller, Engineer Officer. At the same time Lieutenant Goldsborough brought up the latest thing in photo ships, which he is now using up in Washington.

* * *

Air Service Increase in Hawaii—The Adjutant General of the Army has issued instructions to the Commanding General of Hawaiian Department to reduce Field Artillery units on duty in this department from 3,177 to 2,775 enlisted men. This reduction will be absorbed by increasing the strength of the Air Service from 628 to 892; the Signal Corps from an enlisted strength of 212 to 302, and the Ordnance Department from 139 to 187. In addition to this four Ordnance officers will be increased to six.

As will be seen, the Air Service will receive the greater part of this increase in the allotment of troops, or to be exact, 264 enlisted men. This will be enough for the formation of two squadrons, since each squadron is composed of 132 men each, and as a result of the order the Air Service has organized two additional squadrons, namely, the 19th Pursuit and the 72d Bombardment.

"If war were declared to-morrow what would we do for aircraft?"

Significance of the Porto Rican Flight—At a dinner tendered the Porto Rican fliers at the Army and Navy Club in Washington by Air Service officers on duty in the capital and at Bolling Field, some interesting speeches were made.

General Patrick, master of ceremonies, in a warm speech of welcome commended the high spirit of morale in which the mission was carried out and declared that the lessons learned were of great value and vitally affected our national defense. Such a spirit as shown by the fliers assures every success of a trip around the world.

General Mitchell next arose and gave the significance of the flight. The General stated that the trip was far from being merely a little "jazz" trip to Porto Rico, but bore a deep national significance. "The Panama Canal cannot possibly be protected from a modern enemy with a base in the Caribbean Sea who will operate an air force. The Army cannot protect it, nor can the Navy," the General added. "Moreover, we can control the Caribbean Sea with a proper base down there with the greatest ease. There is scarcely more than 90 miles of water between the islands widest apart. This trip shows that San Antonio, Tex., is but a few hours from Porto Rico; it shows that an Air Force is the first line of defense. To defend our coast properly it would be necessary to go out to meet the enemy before he could get close enough to use his aircraft with his carriers; this trip shows we can go out over the water and do it."

General Mitchell hinted that airships acting as airplane carriers were right on the verge of universal use. He stated that Pekin, China, was only 65 hr. from New York by air, and that the flight there would be undertaken at the proper time. "During my recent inspection tour in the North," he said, "when I went on into Canada, we found out that frozen rivers, lakes and land covered with snow made excellent landing fie'ds for airplanes equipped with skiis," the intimation being that the trip to China would be made via the North Pole or at least the Aretic Circle route.

General Patrick then asked Major Lanphier, who led the Porto Rican expedition, to tell some of the things that happened, and how it felt to lead such a flight.

In describing the long flights over the water, Major Lanphier stated "it is not a comforting thing to be out nearly a hundred miles from some particular little island that shows on the map, and you hope the map is right and there is really an island there. Also you wonder if the island is as wide as it is supposed to be and if you are going to hit it or miss it. They look big enough on the map but darn little from the air. Neither did it add any comfort to look down at the gleaming backs of man-eating sharks flopping around beneath you."

The statement which brought most applause was the Major's last—"We can fly arond the world just as easy as we flew to Porto Rico."

The following letter of commendations has since been sent by the Secretary of War to all the officers who participated in the recent successful flight of six army planes to Porto Rico and return:—Capt. Thomas G. Lanphier, Commanding Officer of the Flight, Lieuts. Ivan G. Moorman, C. B. Austin, Newton Longfellow, C. V. Haynes, James A. Woodruff, G. C. McDonald, R. K. Stoner, Erik H. Nelson, D. H. Dunton, Guy Kirksey, and E. T. Selzer:

"It gives me great pleasure to commend you for your excellent performance of duty as a member of the recent successful flight of six army airplanes from the United States to San Juan, Porto Rico, and return. The establishment of airways assists the progress of aeronautics even as good highways accelerated the growth of the automotive industry and you have the distinction of being one of the pioneers in mapping out the airway to Porto Rico and the Virgin Islands.

"This flight of airplanes over the West Indies has indicated the ease of airplane communication with distant possessions of our country and demonstrated the possibility of maintaining an aerial line of defense over the Greater Antilles for the defense of the Panama Canal.

"The fact that this flight of nearly 6000 miles was completed on scheduled time is evidence of good flight organization and is a tribute to your technical ability and mechanical knowledge which enabled you to continually keep your airplane in excellent flying condition. Constant diligence and high esprit were necessary to frequently perform such hazardous over water flying as this expedition required.

"Your exploit brings honor to the United States Army, as well as to the Air Service. As evidence of my high regard for your achievement, I am directing that a copy of this communication be filed with your official record."

* * *

Designation of Air Service Units—A recent General Order issued by the War Department gives the following revised tables for designating Air Service Units:

Units.	First number of series.			Examples of proper designation. (Words in parenthesis are not a part of the official designations, but they should be added whenever their use is desirable.)
	Regular Army.	National Guard.	Organized Reserves.	
Wings of all types ..	Single series beginning with 1.			—th Attack Wing,—th Balloon Wing, etc.
Groups of all types ..	Single series beginning with 1.			—th Pursuit Group, —th Airship Group, etc.
Squadrons of all types.	1	101	301	—th Headquarters Squadron, —th Observation Squadron, —th Service Squadron, etc.
Companies of all types.	1	101	301	—th Balloon Company, —th Airdrome Company, —th Balloon Service Company, —th, Airship Service Company, etc.
Sections of all types ..	1	101	301	—th Photo Section, —th Communications Section, —th Air Intelligence Section, etc.

* * *

Middletown A.I.D.—The command of the Middletown Air Intermediate Depot, Middletown, Pa., has recently been taken over by Maj. R. M. Jones, A.S., and various steps are being taken to improve the condition of the post for the comfort and convenience of the personnel.

A good deal of much needed repair work has been done to the various sets of quarters. Negotiations for the purchase by the Government of the strip of land between the post and the Susquehanna River have about been completed, and preparations are under way for the development and enlargement of the present landing field and for the erection of a couple of steel hangars.

The names of officers stationed at Middletown are as follows: Maj. R. M. Jones, Capt. S. J. Idzorek, Capt. H. R. Springer, Lieuts. E. F. Carey, J. A. Kase, C. Elleman (the latter two are now on detached service at Rantoul) A. J. Melanson, R. C. W. Blessley, R. S. Olmstead, F. S. Borum, B. J. Tooher, R. K. LeBrou, S. F. Landers, E. M. Morris, C. B. DeShields, H. C. Downey and D. R. Goodrich. Lieuts. Jack Greer and R. T. Zane, both of whom have been at this depot for the last two or three years, are leaving for the Philippine Islands and Panama respectively.

* * *

Wheeler Field, H. T.—Wheeler Field is situated on the elevated plains of Oahu, adjacent to and southeast of Schofield Barracks proper. The field, ten months ago a mass of guava bushes and scrub trees, with high tension cables transversing it, is now a full square mile of velvety and unobstructed expanse, approachable from all directions. The original tent hangars have been supplanted by new ones of steel frame, cement floors and massive proportions. The planes, then of the DH4A types, have all been replaced with new DH4B's, and a few JN6HG's.

The Squadron with its full complement of enlisted personnel is at present quartered in the cement barracks of Schofield, but will be moved to excellent quarters on Wheeler Field.

12th Squadron Holds Flying Circus—The 12th Obs. Sq., stationed at Fort Bliss, El Paso, Tex., recently held a Flying Circus for two days, and the event was a huge success. The various military organizations at Fort Bliss were all present, and thousands of spectators came from El Paso and vicinity to witness the aerial tactics of the airmen. Hampered on the first day by low hanging clouds, the program was nevertheless carried out as per schedule. While primarily given by Ivan R. Gates and his troup of "daredevil" performers, the success of the Circus was immensely augmented by the participation of the Army fliers, who gave interesting and realistic exhibitions of scientific combat tactics and formation flights.

U. S. Naval Aviation

Naval Orders—Comdr. Lamar R. Leahy, U.S.N.,—Detached Bureau of Navigation, 4-26-23; to command U.S.S. Wright.

Lieut. Herbert V. Wiley, U.S.N.—Detached Naval Academy, Annapolis, Md.; to Nav. Air Sta., Lakehurst, N. J.

Ens. Roland E. Waller, U.S.N.—Detached Aircraft Squadrons Battle Fleet; resignation accepted 5-15,23.

Lieut. Clarence A. Chandler (DC), U.S.N.—Detached U.S.S. Rochester; to Naval Air Station, Hampton Roads, Va.

* * *

New Aviation Theodolite under Test—A new model of aviation theodolite constructed by the Kueffel and Esser Company was given a trial at the Naval Observatory in Washington on Thursday, April 12. The instrument is designed for taking pilot balloon soundings of the upper air from the deck of an aircraft carrier or other ship. It was found that certain changes in the method of holding the theodolite level will be necessary before it can be used to any great extent in rough seas.

* * *

Post Graduates at M.I.T. to Have JN4H—The Bureau has taken steps to supply a JN4H to the post graduate school at Massachusetts Institute of Technology for flight purposes. This assignment will enable the post graduate students to keep their hand in at active flying while engaged in their studies.

* * *

Preparation for International Balloon Race—A contract has been entered into with the Goodyear Co. for three 80,000 cu. ft. racing balloons. These balloons will be entered in the national elimination race which is to start from Indianapolis, Ind., on July 4.

* * *

Naval Air Detail, Newport, R. I.—At present there are two PT seaplanes at Newport. An Aeromarine model 41 boat, (a remodeled 40 with 150 hp. Hispano Suiza engine) has been assigned to this station and is ready for delivery from the Naval Aircraft Factory.

* * *

Planes for Submarines—Two experimental types of submarine planes will be ready for test during the coming week at the plants of the Cox-Klemin and Martin companies respectively. Both of these little ships are of very interesting design and results of the tests are awaited with great interest.

* * *

ZR1 Power Plant under Test—The ZR1 power plant complete is being given a test run at the Aircraft Factory mounted in one of the power cars. It is planned to complete and test the power cars at the Aircraft Factory and ship them to Lakehurst to be applied to the hull. The hull structure of the ZR1 is practically complete and application of the outer cover has commenced.

Naval Air Station, Lakehurst, N. J.—Two landing fields for land planes have been established on the station. These fields are located to the southward of the airship shed. One is locally known as the "east" field, the other as the "west" field. The "east" field is located to the east of the road which leads from the air station entrance toward the airship shed, and comprises an area approximately 400 ft. wide and 1000 ft. long, and is intended for use on "east" and "west" landings. The "west" field, located to the west of the road, comprises an area approximately 1000 ft. square and can be used for landings in wind of all directions. Landing area of both fields is of a soft sandy nature.

A landing "T", white in color, is laid in the center of each field and the outline area of the field is located on the boundary corners with red flags, mounted on short flagstaffs of light timber. The landing area in accordance with "Rules of the Air" is considered as a left hand circuit field. There are no additional markings inasmuch as the hangar is a sufficient landmark.

* * *

Naval Air Station, Hampton Roads, Va.—Experiments are being carried out with the airship C7, using pressure pads on the envelope and special registering devices to record the bending moment resulting when the controls are operated. This experiment is being conducted to determine the angle which the rudder and flippers can be put over for various speeds without injuring or breaking the ship.

* * *

Naval Air Station, Anacostia—An extended flight was made from this station to Boston, Mass., March 30 to April 3 by Lieuts. A. W. Gorton and G. R. Pond. The purpose of this flight was to photograph landing fields en route.

* * *

Naval Aircraft Factory—DT and TS planes, both of which are now of much interest to the service, are being delivered at a good rate. So far fourteen DT2's and twelve TS planes have been delivered.

One of the DT2's building at the Naval Aircraft Factory has been converted to a DT4 by the addition of a Wright T2 engine. Its preliminary tests have been encouraging.

* * *

Naval Air Station, Pensacola, Fla.—The class of enlisted men for training as Naval Aviation Pilots has been selected and it is expected to have a class of 60 start training about May 1.

Coming Aeronautical Events

AMERICAN

May 30 — *Fifth Annual Aircraft Exhibition, Flying Club of Baltimore, Logan Field, Dundalk, Md.*

June or July — *National Balloon Race.*

Oct. 1-3 — *National Airplane Races, St. Louis, Mo.*

Late Fall — *Curtiss Marine Flying Trophy Race.*

FOREIGN

May 13 — *Grand Prix (Balloons), Paris, France.*

June 25-30 — *International Aero Congress, London..*

July 20- — *International Aero Exhibition, Gothenburg,*
Aug. 12 *Sweden.*

Aug. 3-31 — *Sailplane Meet, Rhoen, Germany.*

Aug. 5-26 — *Sailplane Meet, Vauville, near Cherbourg, France.*

Sept. 28 — *Schneider Maritime Aviation Trophy Race, Cowes, Isle of Wight, England.*

Dec. 1 — *Entries close for French Engine competition.*

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Post-Graduate Instruction for Aeronautical Material Duty—The Chief of Bureau, after examining the situation, has approved the following policy with regard to courses of Post-graduate instruction for aeronautical material duty:—

(A)—A certain number of Naval Aviators will be selected each year for a two-year course in aircraft power plants. The first year will be spent at the Naval Academy where the instruction will cover fundamental engineering subjects. The second year will be spent at the Massachusetts Institute of Technology on professional subjects having to do with aircraft power plant, design, and testing. It is planned to detail student officers upon completion of the course for a short period of instruction to the Inspector of Engineering Material, New York, where the students will be given an opportunity to become familiar with the design, construction and testing of aircraft engines, ignition apparatus, spark plugs, carburetors, storage batteries, etc.

(B)—Officers of Corps of Naval Constructors will be detailed for work on airplanes and airships from the officers of the Construction Corps who complete the regular Construction Corps Post-graduate course. It is contemplated that officers so detailed for aeronautical work will be sent first to the Naval Aircraft Factory under instruction to familiarize themselves with aircraft construction.

(C)—Officers to specialize in aircraft radio will be detailed from those who have had Post-graduate training in radio.

(D)—Officers to specialize in aircraft ordnance will be detailed from those who have had Post-graduate instruction in ordnance design.

* * *

Aircraft Squadrons, Scouting Fleet—Scouting Plane Squadron 1 is proceeding northward, fifteen planes making the trip. Two planes were transferred to Coco Solo and one was burned while being refueled at Panama. Six planes of the Squadron with Teal and Sandpiper followed the southern coast of Cuba to Guantanamo and nine proceeded to Key West. Despatch orders have been issued for C.A.S. Scouting Fleet to transfer six F5L's to Pensacola prior to departure from Key West for Hampton Roads.

Torpedo and Bombing Plane Squadron 1, completed preparations for the trip to Hampton Roads and left Key West with seventeen planes April 12.

* * *

Aircraft Squadrons, Battle Fleet—On March 17 a special extended flight of eight planes from the land plane squadrons participated in the aerial rodeo held by the city of Glendale upon the commissioning of a municipal airport at that point. The Commander, Aircraft Squadrons, attended. On March 19, an aerial review was tendered the Congressional Committee on Arid Lands. The squadrons passed over the reviewing point in column squadrons and executed various maneuvers in formation. Upon completion of the review, a number of the Congressmen were given flights.

* * *

Fighting Plane Squadron Two—Fighting Plane Squadron Two went into commission March 19, 1923. Lieut. Comdr. R. P. Molten, commanding. Nine officers and sixty-eight men reported for duty.

* * *

First Aviation Group, M. B. Quantico, Va.—Orders have been issued to Major Geiger, Captains Woods, Presley, Davis, Page, Mulcahy, 1st Lieutenant Hallenberg and Second Lieutenant Hall to proceed to the Naval Air Station, San Diego, for the purpose of ferrying four Martin Bombers from that station to Quantico.

* * *

U.S.S. Langley—Reports received from the Langley indicate that landings and take-offs from the flying deck are made so frequently that it is becoming a routine matter. Aeromarine 39B and Vought planes are used for such exercises.

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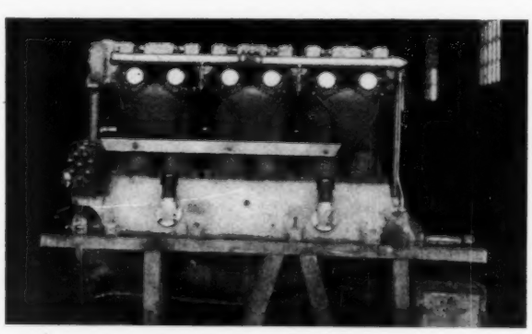

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INDEX TO ADVERTISERS

A

Aircraft Service Directory..... 487

C

Cox-Klemin Aircraft Corp..... 483
Classified Adv..... 484
Curtiss Aeroplane & Motor Corp..... 488

D

Diggins, Ralph C., School of Aeronautics..... 484

H

Huff Daland Aero Corp..... 485

J

Johnson Airplane & Supply Co..... 483

L

Leghorn Trading Co..... 483

M

Martin, The Glenn L., Co..... 464

N

Netherlands Aircraft Mf'g. Co..... 486
Northrop, Marvin A..... 484

S

Sperry, Lawrence, Aircraft Co., Inc..... 485

T

Thomas-Morse Aircraft Corp..... 463

W

Where to Fly..... 482
Wright Aeronautical Corp..... 462

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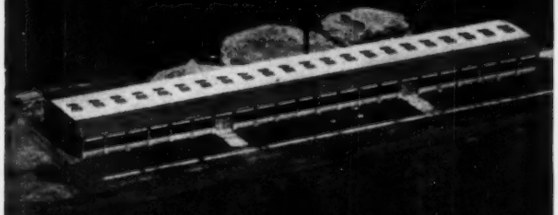

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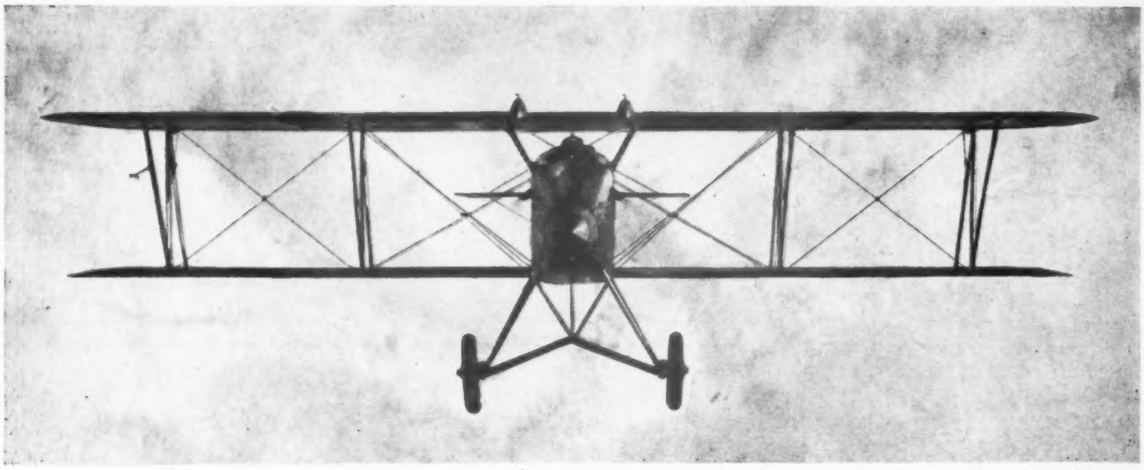

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